

ordinary short and otherwise weak pelvic limb-bones as compared with the very lengthy pectoral ones, and the size of the rest of the bird, it stands quite unique in the suborder to which it belongs. More remarkable than all, however, are the many characters in its skull that powerfully recall the Albatrosses among the Tubinares. These are so evident that one is almost led to believe, if it be not actually the case, that the strong hooked beak in the skull of *Fregata* is a Diomedean rather than a Pelicanine character¹. Apart from the free ends of the furcula coalescing with the coracoids, there are characters in the sternum and shoulder-girdle of *Fregata* that also recall the forms of the corresponding bones in the Albatrosses, but beyond this there appears to be nothing else in the skeleton of the Man-o'-War Bird at all reminding us of those birds.

Since this relationship exists between *Fregata* and *Diomedea*, remote as it may be, it nevertheless, taken in connection with what has been pointed out above in regard to *Phaëthon* and *Puffinus*, ought to convince us that the Steganopodes are more closely connected with the Tubinares than they are with the Longipennes.

There are those who claim to see a kinship existing between the *Accipitres* and the *Fregatoidea*, but there are surely no indications of it so far as the osteology of any of the representatives of the two suborders in question is concerned.

March 6, 1894.

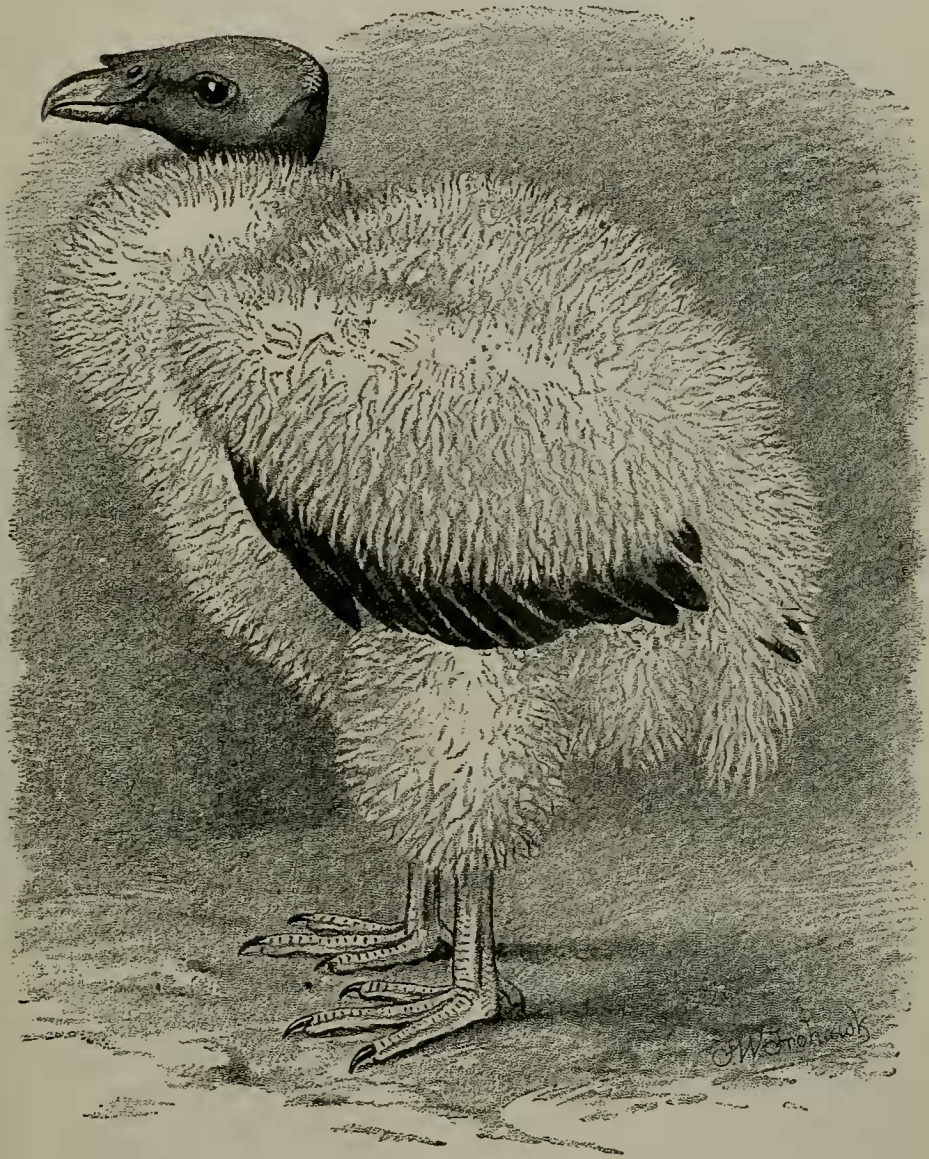
Dr. A. GÜNTHER, F.R.S., Vice-President, in the Chair.

The Secretary read the following report on the additions to the Society's Menagerie during the month of February 1894:—

The total number of registered additions to the Society's Menagerie during the month of February was 83, of which 66 were by

¹ In my extended account of the osteology of the Steganopodes, referred to above, a full description of the skull of the Man-o'-War Bird is given, illustrated by several figures from photographs. From that account I select some of the statements:—"For example, both superficially and otherwise the skull of *Fregata* resembles the skull in some species of Albatrosses (*Diomedeidae*) in not a few respects. This not only applies to the lower jaw, where the similarity is very evident, but also to a number of characters in the cranium and face. The long powerfully hooked superior mandibles are a good deal alike, as are the maxillo-palatines. *Fregata* has a vomer that approaches that bone in the Albatrosses; its palatines are not far off, and even still less so its pterygoids and quadrates. The lacrymals are upon the same plan of structure, and the entire cranium proper in the Man-o'-War Bird might well answer for that of an Albatross but slightly removed from the typical stock. *Fregata*, however, lacks the deep supraorbital glandular fossæ so characteristic of the *Diomedeidae*, and, from above downwards, the skull is somewhat more compressed than it is in, for example, such a species as the Short-tailed Albatross (*D. albatrus*)."
[Then follows a detailed comparison, character by character, of the skull and associate parts as found in *Fregata aquila* and *Diomedea albatrus*, but that comparison is of too great length to insert here as a footnote.]

presentation, 5 by purchase, and 12 on deposit. The total number of departures during the same period, by death and removals, was 73.



Young King Vulture in down plumage.

(Received October 20, 1893.)

I take this opportunity of calling attention to the young King Vulture (*Gypagus papa*) which we received in the down plumage on the 20th October last. It has been figured in the 'Field,' lxxxii. p. 971 (1893), by the proprietors of which the accompanying

illustration has been lent to us. This bird has now moulted its nestling-plumage altogether, and has assumed the first feather-plumage, in which it is nearly of a uniform black.

The young bird was probably not more than 2 or 3 months old when received, and therefore would appear to remain about 7 or 8 months in its nestling-plumage.

Mr. W. Bateson exhibited six specimens of the Common Pilchard (*Clupea pilchardus*) showing variation in the number and size of the scales. The specimens had been received from Mr. Matthias Dunn, of Mevagissey, Cornwall. In each of them the scales over a greater or less area of the body were smaller and more numerous than in the normal fish. Similar specimens were exhibited to the Society by Mr. Bateson in 1890 and had been described in the Proceedings¹ as examples of abnormal repetition of parts. In that paper reference was made to an account of a similar specimen that had been given by the late Mr. F. Day², who took a different view, being of opinion that the fish was a hybrid between the Pilchard and the Herring. For reasons then given it was urged that the evidence of hybridity was unsound, and it was represented that the abnormality was more probably due to variation.

The new cases fully bore out the view then taken. Except in the matter of the scales, each of the six examples was in all respects a true Pilchard, having the normal sculpture on the opercula, the high number of gill-rakers characteristic of the Pilchard, and the histological features normally found in the scales of the Pilchard. In the matter of the gill-rakers the lowest number seen in the abnormal fishes was 70 and the highest 89, most of them having about 78. The numbers seen in normal Herrings are considerably lower than these.

In four of the new specimens the small abnormal scales extended over the posterior half of one side only. In one specimen both sides were almost uniformly covered with the small scales. In the sixth specimen the posterior half of one side showed the small scales, and on the other side there was in about the middle of its length a circular patch of very small scales, the remainder of the scaling being normal or nearly so. Unfortunately the specimens had been somewhat rubbed and the precise numbers of the scales cannot confidently be given. Speaking in general terms, it may be said that in the areas of abnormal scaling the size of the scales was about half that of the normal scales. All the specimens were well grown and in good condition, ranging from 7 to 8½ inches in length.

¹ Proc. Zool. Soc. 1890, p. 586.

² *Op. cit.* 1887, p. 129, pl. xv.

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NOTICE.

The 'Proceedings' are issued in *four* parts, as follows:—

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|------|------|--|
| Part | I. | containing papers read in January and February, on June 1st. |
| | II. | " " " " March and April, on August 1st. |
| | III. | " " " " May and June, on October 1st. |
| | IV. | " " " " November and December, on April 1st. |

16 e

PROCEEDINGS
OF THE
GENERAL MEETINGS FOR SCIENTIFIC BUSINESS
OF THE
ZOOLOGICAL SOCIETY
OF LONDON,
FOR THE YEAR
1894.

PART II.
CONTAINING PAPERS READ IN
MARCH AND APRIL.



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Dr. J. W. Gregory, F.Z.S., made some remarks on the factors that appear to have influenced zoological distribution in Africa, commencing with the following observations:—

“It has long been known that the phenomena of distribution in Equatorial Africa present a series of glaring contradictions and anomalies. Thus many groups extend across Africa east and west, others run north and south, while a third group occurs only as isolated patches on the summits of the highest mountains. Similarly the fishes of many rivers and lakes belonging to different basins have identical or nearly allied species. These are absent in North-east Africa and reappear in the lakes and rivers of Syria. As it was believed that the geology of Central Africa was very simple and that the country had been for ages remarkably stable, it has appeared very difficult to explain these facts of distribution. The results of more recent work, however, show that the lake-region of Africa is a district of great instability.”

Dr. Gregory then gave a brief sketch of the probable changes that had occurred in the level of the country:—“Originally the Victoria Nyanza district was probably a high plateau on which rose rivers that flowed on one side into the Congo and on the other into the Indian Ocean and the Red Sea. The centre subsided and the drainage formed a great lake. This was subsequently further isolated from the Congo and the East Coast river-systems by two long cracks forming rift valleys. Subsequently the Nile cut through the mountains to the north of the Nyanza, and the waters of that lake became discharged into the Nile. The Jordan Valley was connected to the East-African river-system at a time when much of the Eastern Levant was dry land and Palestine was covered by a freshwater lake. The surplus waters of this lake discharged to the south and flowed along the valley that by later subsidence was formed into the basin of the Red Sea. The living land- and river-mollusks of Abyssinia and the fossil species to the south also show that the connexion between Syria and the Central African lakes was established by a river that flowed across Baringo and Basso Narok and thus into the south end of the Red Sea.

“The key to the distribution of the land animals and plants lies in the discovery of the former extension of the glaciers of Mount Kenia. The climate must then have been very different from the present one. The results of the former greater height of the land would have been a depression of the isobaric surfaces and the formation of a high-pressure area over the central plateau. The winds would have been different and far less regular, and the rainfall would have been greater and more evenly distributed. The surface of maximum rainfall would have been lower and more extensive. Hence the present alpine flora would have descended from the mountains to the plateaus, and the low-level flora have been luxuriant and better adapted for food than the existing scrub. There would therefore have been no such barriers to the migration of small mammals and many of the invertebrates as exist at present.”

Dr. Gregory then exhibited and made remarks upon a series of photographic slides, illustrative of his recent expedition to Mount Kenia.

The following papers were read :—

1. Note on Three Species of River-crabs of the Genus *Thelphusa*, from Specimens collected in Eastern Africa by Dr. J. W. Gregory, Mr. H. H. Johnston, C.B., and Mr. F. J. Jackson. By F. JEFFREY BELL, M.A.

[Received February 7, 1894.]

During his remarkable expedition to Mount Kenia Dr. Gregory obtained, in the papyrus-swamp north of Rangatan Ndari, Leikipia, a River-crab of the genus *Thelphusa*, which may be referred to the species *T. berardi*, first figured by Savigny. From a height of from two to three thousand feet on Mount Zomba, Mr. H. H. Johnston, C.B., has lately sent a specimen which must be referred to *T. depressa*, Krauss. Mr. F. J. Jackson has also been so good as to present to the Trustees of the British Museum two examples of the same genus taken on the south side of Mt. Elgon, which are to be referred to *T. nilotica*, M.-E.

It is very interesting that three different species should reach the Museum within as many months from three distinct, though not so very distant, localities in the eastern half of Central Africa. What is of importance is that the species from the more northern localities (Mt. Elgon and Leikipia) are those which have a more northern distribution, for both are Egyptian; whereas *T. depressa* was described by Krauss¹ from Port Natal, and a variety of the same species, characterized by Mr. E. J. Miers² as *T. depressa johnstoni*, was found by Mr. H. H. Johnston during his expedition to Kilimanjaro in 1884.

So far as evidence is afforded by the species of this freshwater Crab, the line of demarcation between North and South Africa would lie south of Mt. Elgon and north of Kilimanjaro; and in support of this view there is the fact that, as Mr. Edgar Smith has reminded me, *Physopsis africana* and *Limnea natalensis*, which were both described by Krauss from specimens collected in Natal, have been found in Lake Nyassa. The latter, however, extends as far north as Abyssinia, and there is some reason to suppose that it also inhabits the West Coast of Africa; so that it does not afford us much assistance in the delimitation of areas of distribution in this region of the African continent.

However, the problems of distribution in Africa are so many and so difficult, that what we need at present is a broader and firmer basis of facts.

¹ Südafrikan. Crust. (1843), p. 38, pl. ii. fig. 4.

² Proc. Zool. Soc. 1885, p. 237.

2. On the Hemiptera-Heteroptera of the Island of Grenada,
West Indies. By P. R. UHLER.¹

[Received February 9, 1894.]

[Two papers were recently communicated to the Society on Hemiptera from the island of St. Vincent (see P. Z. S. 1893, p. 705, & 1894, p. 156); in these it was mentioned that Prof. Uhler was engaged in working out the collections from Grenada sent to him by the Committee. I have now the pleasure of offering to the Society the memoir the reception of which we were then looking forward to. The collections studied were made by Mr. and Mrs. Herbert H. Smith under the auspices of Mr. F. D. Godman, F.R.S., in the manner that was mentioned when we were dealing with the St. Vincent insects.—D. S.]

The collection of Heteroptera here enumerated was brought together in the island of Grenada by Messrs. Herbert H. Smith and Henry E. Summers during a part of the year 1891. It represents the results of a careful search over the principal parts of the island during a period of about eight months, extending from February to November. The total number of species brought back is about 166, excluding varieties and some immature forms which could not be identified.

Although not exhaustive, the collection affords an excellent basis of comparison with the faunas of other islands and countries adjacent to the centre of America; it also supplies some hints as to the sources from which the fauna has been derived.

From a review of the species here enumerated it appears evident that the Hemipterous fauna is Central-American. It is largely composed of forms which belong to the borders of the Tropics, rather than of such distinctly tropical ones as inhabit the South-American continent. The *percentage* of small forms is remarkably large. The family most extensively represented is the *LYGÆIDÆ*, of which 28 species are present, and these are correspondingly numerous in individuals. Of these species nine-tenths are found in Cuba and the other Greater Antilles, and about the same number also occur in Mexico and Central America.

Next in abundance appear the *PENTATOMOIDEA*, with 24 species. Most of these, likewise, are found in the Antilles, Mexico, and Central America, and form part of the fauna which ranges from the southern United States to the borders of the equatorial region. The most conspicuous form is *Edessa rugulosa*, which is closely related to a species of Cuba and San Domingo and to another from Mexico. *Banasa lenticularis* is very closely related to another species which also occurs in the countries just mentioned.

The *REDUVIOIDEA* come next, but the 24 species of this family are not generally abundant in individuals. About eight-tenths of

¹ Communicated by D. SHARP, F.R.S., F.Z.S., on behalf of the Committee for investigating the Flora and Fauna of the West India Islands.

these are widely distributed in the Antilles, Mexico, Central America, and the Isthmus of Panama.

The CAPSIDÆ are represented by 18 species, all but one of which have been found in the Antilles, Mexico, Central America, and the southern United States.

The COREIDÆ are represented by 17 species, a very few of which are of large size, while most of them are widely distributed, occurring from the Gulf States to the northern borders of South America.

In the ANTHOCORIDÆ we find a few genera and a total of 14 species. Those which are not new belong to forms peculiar to the Gulf States, Mexico, Central America, and the Greater Antilles. As these little creatures live much in concealment, amid tangled vegetation and decaying leaves, and upon twigs, fungi, and mosses, their distribution is but little restricted, and they extend over large parts of the continental areas.

In the CERATOCOMBIDÆ we meet with only 5 species, and these are of the widely distributed forms which spread north from the region of Brazil—*Ptenidiophyes mirabilis*, Reuter, being the only one of these not yet found in the corresponding island of St. Vincent. The collecting of these minute insects has been so generally neglected that the time has not yet come for adequate comparative statements to be made relative to the genera and species belonging to different localities; but the assemblage from St. Vincent, as now known, is more varied and comprehensive than that of Grenada. Four of the widely distributed species occur in both islands, while the four other peculiar forms were found in St. Vincent and not in Grenada. It is very unlikely that these types are confined to St. Vincent, and we confidently expect to see them discovered when the minute insects of Grenada shall have been more exhaustively collected.

The fauna of the littoral plain of the southern United States includes several genera and species not yet discovered in the West Indies, but it also embraces two or three species, particularly in the genera *Ceratocombus* and *Cryptostemma*, which have an extensive distribution in the central regions of America.

Turning to the VELIDÆ, we find them comparatively well represented by fourteen species, rich in individuals. They exhibit some interesting modifications of structure. The elongation of the legs in one species of *Microvelia* points to a closer relationship than has hitherto been indicated between this group and that of the Hydrobatidæ. A genuine salt-water species, *Rhagovelia plumbea*, which also lives on the ocean about the Florida Keys and on the coasts of Southern Florida, adds new interest to this peculiar group of insects. This species is also noteworthy from the fact that the sexes unite sexually in what would appear to be a larval stage—the male being usually not more than one-half the bulk of the female, and both being of weak integumentary structure, and destitute of rudimentary wing-segments in the greater number of specimens. No specimens with wing-covers have yet been brought to notice.

A large number of specimens of the HYDROBATIDÆ were found, but represent only four species. They were met with more especially near the sea-coast on the flat lands and marshes.

A form closely related to *Rheumatobates* adds another to the growing list of these remarkable insects. It is a matter of regret that only one mature and winged specimen of this curious form was taken, and it is unfortunate that no observations were made respecting its mode of life and the peculiarities of its *habitat*. The pale and membranous character of its wing-covers give it the appearance of a small and slender wasp, so that this peculiarity of aspect might be of some service in protecting it from enemies which it must meet with in the water where it dwells.

The other palustrine and aquatic forms here enumerated are mostly common species which have an extensive distribution throughout the regions between Northern Brazil and the southern United States.

The presence of only two species of *Corisa* seems remarkable in a region where shallow placid and sluggish waters abound and form such suitable homes for this type of insect.

It is also difficult to account for the absence of a large number of forms of *Galgulus*, *Mononyx*, and *Notonecta*. These hardy insects abound in just such places as are mentioned above; as for example on the marshes, turbid sands, about the slime on the borders of sluggish waters, and among the roots of grass and slender plants in wet places.

In comparing this assemblage of species with that of the island of St. Vincent, the differences between them do not seem sufficient to warrant their separation into two faunas. The most divergent form from the general average is the remarkable Alydid, *Darmistidus*. This form was not among the collections from Grenada, and it is not like any that has yet been brought from any part of the American continent or its islands.

This collection adds valuable information supplementary to our previous knowledge of the faunas of the Greater Antilles, Mexico, Central America, and Colombia; but much further research will be required before we can satisfactorily recognize the limits of the great areas of distribution of the Hemiptera south of the United States.

PACHYCORIDÆ.

AGONOSOMA, Lap.

1. AGONOSOMA FLAVOLINEATA, Lap.

Agonosoma flavolineata, Lap. Hémipt., Mag. de Zool. ii. p. 69.

Examples of this species were collected at Balthazar, April 6, at an elevation of 250 feet above the sea, from foliage along the road, on dry ground, in woods of second growth. On April 30 a specimen came to the light at night. Other specimens were found on the La Force estate, August 17, on open damp ground under piles of weeds. On the Caliveny estate they were swept, September 17, from herbage on low open ground.

2. AGONOSOMA TRILINEATA (Fabr.).

Cimev trilineata, Fabr., var., Spec. Ins. ii. p. 341.

At Balthazar, one specimen came to the light at night, on April 30; another was found on herbage near the leeward coast, at St. George's; a third was beaten, on September 29, from herbage, on the hillside of the Mount Gay estate.

SYMPHYLUS, Dallas.

SYMPHYLUS DEPLANATUS (H.-Schf.).

Pachycoris deplanatus, H.-Schf. Wanz. Ins. iv. p. 3, t. cx. fig. 344.

Specimens were taken at Balthazar, April 7, which came to the light at night, and one was beaten from herbage on August 18; on September 3-10, specimens came to the light, at night, on the Mount Gay estate.

SPHYROCORIS, Mayr.

SPHYROCORIS OBLIQUUS (Germar).

Pachycoris obliquus, Germar, Zeitschr. i. p. 94.

Several specimens were swept from herbage at Balthazar, April 7, at an elevation of 250 feet above the sea, on open weedy places near a stream of water. Others were secured near St. George's, as also on the Mirabeau and Mount Gay estates.

THYREOCORIDÆ.

THYREOCORIS, Schrank.

THYREOCORIS PULICARIA (Germar).

Odontoscelis pulicarius, Germar, Zeitschr. i. p. 39.

This species was taken on the Mirabeau estate, March 25, at an elevation of 500 feet above the sea, in open places near a stream, where it was swept from herbage. It was also found at St. George's near the botanic gardens, September 10, on grass growing in a swamp. At Mount Gay it was taken, September 17, from herbage on low ground.

The specimens differ in no important respect from those which are common in Maryland and the southern United States. In these last localities the species lives in the axils of *Eupatorium*, on low or marshy ground.

CYDNIDÆ.

CYRTOMENUS, Am. et S.

CYRTOMENUS CILIATUS (Pal. Beauv.).

Pentatoma ciliata, Pal. Beauv. Ins. Afr. et Amér. p. 186, pl. 11. fig. 6.

Two specimens were captured on the Mount Gay estate, September 6, on open places near a stream.

PANGÆUS, Stål.

PANGÆUS MARGO (Dallas).

Æthus margo, Dallas, List, i. p. 116.

Numerous specimens of both sexes were found at Balthazar, March 7 and 31, up to an elevation of 1900 feet above the sea, on foliage, next the ground, in damp places near the water. Others were taken on the Grand Étang, September 12, at an altitude of 1300 feet, while flying at sunset.

GEOTOMUS, Muls. et Rey.

GEOTOMUS SPINOLAI (Sign.).

Æthus spinolæ, Sign. Ann. Soc. Ent. Fr. 1863, p. 545, pl. 12. fig. 12.

Only one specimen was found. It was taken on the Mount Gay estate, August 28, while flying at sunset.

AMNESTUS, Dallas.

1. AMNESTUS SUBFERRUGINEUS, Westw.

Cydnus subferrugineus, Westw. Hope Cat. i. p. 19.

Many specimens were collected at various places on the island. At Balthazar they were taken while flying over open places at sunset, August 4. On the Mount Gay estate they were also found, August 20-25, flying at sunset; and on the Grand Étang, September 15, they were beaten from undergrowth in the forest, at an elevation of 1900 feet above the sea.

2. AMNESTUS PUSILLUS, Uhler.

Amnestus pusillus, Uhler, Hayden Geol. Surv. Bulletin, i. p. 278.

This uncoloured little groundling was collected in April, at Balthazar, where it occurred on open weedy places, in second-growth thickets.

PENTATOMIDÆ.

MACROPYGIUM, Spin.

MACROPYGIUM RETICULARE, Fabr.

Cimex reticularis, Fabr. Syst. Rhyng. p. 170.

This common American insect was captured at Balthazar, April 15, at an elevation of 250 feet above sea-level. It was found on shady places among the weeds, in woods of second growth, near a stream of water.

Cuba is the most northern territory from which this species is at present known. It seems to be about as common in Grenada as it is known to be on the Upper Amazons.

PODISUS, H.-Schf.

1. *PODISUS SAGITTA* (Fabr.).

Cimex sagitta, Fabr. Ent. Syst. iv. p. 99.

Several specimens were beaten from plants at Balthazar, April 3, in open weedy places, and from similar herbage on the Mount Gay estate, on August 22 to 31.

This species ranges all the way from Tabatinga, on the Upper Amazon, to Texas and Tamaulipas, Mexico, and extends its distribution through all the Greater Antilles.

2. *PODISUS GAUMERI*, Dist.

Podisus gaumeri, Dist. Biol. Centr.-Am., Hem.-Heter., Suppl. p. 320, pl. 30. fig. 16.

A few specimens of this form were collected at St. George's, August 22 and 31, from herbage in swampy places.

MORMIDEA, Am. et S.

MORMIDEA UPSILON (Linn.).

Cimex upsilon, Linn. Syst. Nat. ed. xii. i. p. 720.

This species proved to be quite as common in Grenada as it is at Pará, at various other places on the coast of Brazil, and in the West Indies. Specimens were collected at Balthazar, April 7, on open weedy places, where they were swept from herbage; at the same place they were taken, August 15, from herbage, at night. Others were captured at light, at night, on the Mirabeau estate, and likewise on the Vendôme and Chantilly estates and Grand Étang. At Mount Gay specimens were found, September 14, at elevations of 400-600 feet above the sea, in open places upon herbage.

EUSCHISTUS, Dallas.

EUSCHISTUS CRENATOR (Fabr.).

Cimex crenator, Fabr. Ent. Syst. iv. p. 101.

Two forms of this species, the one with acute humeri, the other with blunter ones, were found in large numbers on most parts of the island. At Balthazar it was brushed from herbage on March 23, in cocoa orchards where the soil was damp and shaded; on April 2 they were found at an altitude of 1900 feet above the sea, on a narrow strip of grassy and weedy land between the lake and the forest. Others were collected later in April on the Mount Gay and Lake Antoine estates, and as late as May 4.

BERECYNTHUS, Stål.

BERECYNTHUS DELIRATOR (Fabr.).

Cimex delirator, Fabr. Ent. Syst. iv. p. 103.

This is a Colombian insect which ranges from the head of the Madeira river, in Brazil, all the way to Venezuela, Central

America, and Mexico, and extends to the Lesser Antilles. It is also found in the vicinity of Pará and at a few points farther up the Valley of the Amazons.

Several specimens were secured at Balthazar, April 7, in open weedy places, from herbage, near a stream. On the Mount Gay estate they were found, August 22, on herbage in open places, at night. Two specimens were taken at St. George's, September 11 and 28, on herbage.

PROXYS, Spinola.

PROXYS VICTOR (Fabr.).

Cimex victor, Fabr. Syst. Ent. p. 705.

A few specimens were taken at Balthazar, April 1, in the swampy forest near the sea-shore, where the mangrove-tree flourishes. A single specimen was also found on the Chantilly estate.

ARVELIUS, Spinola.

ARVELIUS ALBOPUNCTATUS (De Geer).

Cimex albopunctatus, De Geer, Mém. iii. p. 331, pl. 34. fig. 6.

Specimens of normal size were found near Balthazar, April 1, in a swampy forest near the sea-shore. On the Mount Gay estate others were taken, August 28, on herbage, on the hill about 700 feet above the sea.

Specimens sometimes occur in Florida, Cuba, and Lower California which are only half the normal size.

THYANTA, Stål.

1. THYANTA PERDITOR (Fabr.).

Cimex perditor, Fabr. Ent. Syst. iv. p. 102.

This extremely common species inhabits Northern Brazil and spreads through Colombia to Mexico, and far northward in the western part of the United States into Southern Colorado. It is also found in all the principal West India islands including Trinidad. On the eastern side of the United States it extends as far north as to the vicinity of Savannah in Georgia.

The specimens collected in Grenada were found on the Mount Gay estate, August 21 and September 28, where they were beaten from herbage in open places near a stream of water. One specimen was obtained at St. George's, in August, from herbage, at night.

2. THYANTA TÆNIOLA (Dallas).

Pentatoma tæniola, Dallas, List, i. p. 250.

This is also a common species in the West Indies, and numerous specimens were secured in Grenada. It is also found in Northern Brazil, Central America, and Mexico, and it spreads over the border into California and Arizona. In San Domingo it is very common on low plants growing beside the roads near the coast. It is also

quite variable in size and sometimes lacks the red band on the base of the pronotum.

In Grenada it was taken on the Lake Antoine estate, March 24 and April 13, at an elevation of 350 feet above sea-level, on herbage in open places. It was also found on the Mount Gay estate and at St. George's, in August.

3. *THYANTA CASTA*, Stål.

Thyanta casta, Stål, Stettin. ent. Zeit. xxiii. p. 104.

This species was taken on the Mount Gay estate, in smaller numbers than the preceding one, and it was beaten from herbage, August 1, in open places. It was also found on the Lake Antoine estate, March 24, on herbage, and in thickets near the sea.

CRATO, Dist.

CRATO URBICUS, Dist.

Crato urbicus, Dist. Biol. Centr.-Amer., Hem.-Heter., Suppl. p. 457, pl. 39. fig. 22.

Only two specimens of this insect were secured; they were beaten from herbage, at night, in open places, August 22, on the Mount Gay estate.

BANASA, Stål.

BANASA LENTICULARIS, sp. nov.

Form similar to *B. packardii*, Stål, but more convex above, especially upon the pronotum; longer oval than the related *B. imbuta*, Distant. Pale green, more or less rufous upon the pronotum, base of head, coriaceous part of hemelytra, and posterior border of the scutellum highly polished. The head, pronotum, and corium set with remote erect bristles, most of the remaining surface minutely pubescent. Head a little longer than wide, irregularly and remotely, finely punctate, the surface uneven, depressed next the base of tylus, often paler at base and near the eyes. Antennæ more or less rufous, remotely pubescent, the second joint much shorter than the third, the fourth sometimes infuscated; rostrum reaching the posterior coxæ, green, black at tip. Pronotum unusually convex in the female, somewhat less so in the male; the lateral margins reflexed, impunctate, ivory-white, hardly sinuated, the humeral angles a little prominent, with the outer margin curved and the surface near it tumid; the surface generally coarsely, remotely, deeply punctate, the punctures partly arranged in transverse, curved, broken lines; the margin, bounded behind by a line of punctures, behind the eyes reflexed, and the angles outside the eyes produced into a small tooth; the posterior margin a very little arcuated, with the edge most slenderly reflexed, and the posthumeral margin sinuated, with the submargin depressed. Scutellum very remotely, coarsely punctate, the punctures becoming denser and finer along the sides, with the apex narrow, pale, almost flat, and nearly impunctate.

Corium and clavus coarsely, deeply punctate in lines, becoming more dense and irregular on the cuneal space; the costa with about three lines of punctures, and a line of smaller ones on the inner suture; disk along the suture broadly smooth; membrane transparent, sometimes a little tinged with rufous; wings also more or less rufous or yellowish. Tergum often reddish, with the connexivum pale green, more or less yellowish or reddish, highly polished, remotely and finely punctate, angles of the posterior segment acute. Legs deep green, with the tibiæ not grooved.

Length to end of venter, ♂ $8\frac{1}{2}$ -9, ♀ 10-10 $\frac{1}{2}$ mm.; width of pronotum ♂ 5-5 $\frac{1}{2}$, ♀ 5 $\frac{1}{2}$ -6.

Eighteen specimens of this species were collected by Mr. H. H. Smith, who gives the following notes concerning their capture:—"Swept from herbage in open weedy places, at an altitude of 250 feet above the sea, on April 3; about cocoa orchards, on herbage, April 5; came to light at night, August 6-10, at an altitude of 250 feet; also August 25-30; August 26-31, beaten from herbage; September 3-10, came to light at night, at an altitude of 300 feet." These were collected on the Mount Gay estate, on the leeward side of the island of Grenada.

PIEZODORUS, Fieber.

PIEZODORUS GUILDINGI (Westw.).

Raphigaster guildinii, Westw. Hope Cat. i. p. 31.

Specimens of both sexes and of two varieties (*i. e.* degrees of maturity) were found at Balthazar and other places. At the former they were taken, March 23, from herbage, at night. Others were found at St. George's, August 22, on open swampy places, upon herbage.

This species has an extensive distribution. In my collection there are specimens from Paraguay, Rio, Pernambuco, San Domingo, Cuba, Mexico, and Southern Florida. I have also examined specimens from Jamaica, Trinidad, and Central America.

This species varies in size, convexity, and depth of colour. Some of these differences are due to the degree of maturity of the specimens at the time of their capture. Immature specimens are a pale faded greenish, either with or without the red band across the pronotum. When the dorsum of the mesonotum shows through the integument the base of the pronotum appears black, but when the chitinous cover of the pronotum is maturely indurated no blackish spot appears across the base of this segment. Specimens when fresh and mature are of a clear green colour.

NEZARA, Am. et S.

1. NEZARA MARGINATA (Pal. Beauv.).

Pentatoma marginata, Pal. Beauv. Ins. Afr. et Amér. p. 147, pl. 10, fig. 1.

Several specimens of this species were collected. Those from

Balthazar were taken, March 24, in open places and from thickets near the sea, from herbage; others were found at the same place in April, and one was captured on the Lake Antoine estate.

This is another Colombian form with a distribution from Northern Brazil to Southern Florida and the coast of Texas. It is found in all the Greater Antilles and Trinidad. Two specimens from Pará, in my collection, vary but little from the type as we find it in Mexico and Cuba. The specimens from Grenada vary much in size, just as they do in San Domingo, Cuba, and Mexico. The males are sometimes only about half the size of the females.

2. NEZARA VIRIDULA (Linn.).

Cimex viridulus, Linn. Syst. Nat. ed. 10, p. 444.

This species is now known from the warm parts of all four of the continents. In the United States it inhabits the littoral plain from Virginia to Florida and Louisiana. It is found in all the large West India islands, including Trinidad.

In Grenada the specimens were found at Balthazar, April 2, on weeds and various kinds of herbage. On the Mount Gay estate it was taken, August 20 to 25, on herbage in open places.

EDESSA, Fabr.

1. EDESSA BIFIDA, Say.

Pentatoma bifida, Say, Insects of Louisiana, p. 7; *Edessa cornuta*, Burm., and *E. cornuta*, Guérin; also *E. albirenis*, H.-Schf. Wanz. Ins. vii. p. 127, t. cexlix. fig. 774.

Types of all the references above given have been identified for me by Dr. Stål and others, and there is no reason for keeping them apart as is done in the Catal. Gén. des Hémipt. par MM. Lethierry et Severin, pp. 188, 189.

This species is distributed from Northern Brazil and Colombia through Central America and Mexico into the southern United States and the Antilles. It is variable to a marked degree in the distribution, depth, and coarseness of the punctures, the size and length of body, and the convexity of the pronotum. The scutellum is occasionally blunter than in the average, and the pronotum sometimes shows traces of wrinkles on the convex dorsum. Mr. Distant's figure of *E. cornuta*, Burm., Biol. Centr.-Am., Hem.-Heter. pl. 9. fig. 22, well represents the *E. bifida*, Say, as we find it in Louisiana, Florida, Cuba, and Grenada. Besides this, a pair of types from the Mexican series separated by Mr. Distant in working up his material for the 'Biologia' are before me at this moment, and they are precisely like my specimens from the United States and the Antilles. In examining a series of somewhat more than a hundred specimens of both sexes, from near Samana, San Domingo, I was surprised to find abrupt differences in the length of the anterior fork of the sternum of the male, and in the depth of excavation and angularity of the sides of the genital segment. The female is usually a broader, larger,

and more convex insect than the male. Occasionally the knobs on the superior surface of the connexivum are absent. When alive these insects are grass-green above, with the corium more or less bright wine-brown. Specimens from San Domingo seem to be usually more rugose upon the pronotum and wing-covers and flatter near the anterior angles of the pronotum than in the series which I have examined from the United States and Mexico. Specimens from Grenada are on the average more smooth than those from San Domingo. In my collection there is a graded series which takes in the various modifications from *E. cornuta*, Burm., with narrow and acute scutellum and coarse deep punctures, through the moderately smooth and remotely punctate *E. albirenis*, to the smooth *E. sigillata* with obsolete punctures on the pronotum and scutellum.

2. EDESSA RUGULOSA, sp. nov.

Form of *E. rufo-marginata*, De Geer, but of the size of *E. meditabunda*, Fabr., which it somewhat resembles. Bright green, moderately polished, wrinkled on the head, pronotum, base of scutellum, and base of costal area, with the hemelytra wine-brown, and the lines of the clavus, reticulations of tip of corium, most of the costal area, and underside of the body yellow. Head short, minutely but distinctly punctate, bordered on the sides and tip with yellow; antennæ honey-yellow, the basal joint much thicker than the following ones, the second shorter than the third, the fourth only a little longer than the third; rostrum rufo-flavous, reaching midway between the fore and middle legs, and fitting into the fork of the mesosternum. Pronotum transverse, coarsely, deeply, irregularly punctate in somewhat transverse series, the sunken space in front of the callosities and behind the eyes densely and finely punctate; callosities and their diagonal continuation smooth, impunctate; lateral margin reflexed, smooth, yellow, the humeral angle prominent, a little rounded, smooth, the post-humeral submargin sunken, with two lines of close punctures; the posterior margin a little arcuated, the submargin bordered with a line of fine sunken punctures; pleural border beneath the lateral margin linearly callous, grooved and punctate in continuity with the underside of head. Sternal pieces remotely punctate; the mesosternal plate corresponds with that of *E. meditabunda*. Scutellum moderately long, very moderately convex at base, depressed next the tip, less coarsely but deeply, not closely punctate, somewhat rugose on the base and middle, more finely punctate posteriorly, the sides slenderly bordered with yellow, and the tip acute. Clavus narrow, punctate with red in two approximate lines, the margin carinately elevated; corium bordered next the clavus with two strong punctate ridges, which are hollowed inwardly by two corresponding lines of rufous sunken punctures; the punctures of the disk fine and even, those of the base coarser; costal area contracted at base, set near the base with small, yellow, transverse callosities between the reddish punctures; membrane bronze-brown, with the veins darker. Legs honey-yellow, obsoletely punctate,

clothed with erect hairs. Venter and sternal pieces highly polished, finely punctate, transversely grooved, the grooves of the pleura more especially punctate; stigmal orifices black; connexivum green, more coarsely punctate, the angles of the segments acute; ventral ridge prominent, highly polished, impunctate.

Length to end of venter 10–13 mm.; width of pronotum $6\frac{1}{4}$ –7 mm.

Forty-one specimens were collected at different places on the island. At Balthazar, on the windward side, they were taken on April 1, in the swampy forest near the sea-shore, and mainly in the mangrove district; also April 13, at an altitude of 350 feet, in second-growth timber near the border of a stream on the Lake Antoine estate.

This species approaches *E. meditabunda* in the structure of the mesosternal plate, which has the anterior fork long and slender, with the sides acutely triangular, and the posterior fork shorter and more blunt; but it differs in having the tylus much longer, the sides of the head not turned up, in the evenly reflexed and not knobby border of the pronotum, in the longer and acute scutellum, and in the more contracted and less callous costal margin.

COREIDÆ.

SPARTOCERA, Lap.

SPARTOCERA FUSCA (Thunb.).

Cimex fusca, Thunb. Nov. Ins. Spec. ii. p. 44.

Ten specimens of two varieties of this insect were collected on the Mount Gay estate. They were obtained, April 2, from thickets on swampy ground; also September 14, at elevations of 400–600 feet, on open places on herbage; and on September 29 they were beaten from herbage on the hillside. One specimen was taken at Chantilly, March 23, in a clearing, on the underside of a log.

ACANTHOCERUS, Pal. Beauv.

ACANTHOCERUS LOBATUS, Burm.

Acanthocerus lobatus, Burm. Handb. ii. p. 318.

Specimens of this insect were obtained in nearly every section of the island. At Balthazar they were beaten from herbage, March 19, on an open place about 250 feet above the sea. Others were taken at Chantilly, Vendôme, and particularly on the Mount Gay estate, where they were numerous in September, on herbage.

LEPTOGLOSSUS, Guérin.

LEPTOGLOSSUS ZONATUS (Dallas).

Anisoscelis zonata, Dallas, List, ii. p. 452.

The most beautiful variety of this insect proves to be quite abundant in Grenada. Specimens were taken, both in the spring

and autumn, on the windward and leeward sides of the island. They were found on the Mount Gay estate, also at Balthazar, Lake Antoine, and on the Mirabeau and Vendôme estates.

PTHIA, Stål.

PTHIA PICTA (Drury).

Cimex picta, Drury, Illustr. i. p. 107, pl. 45. fig. 1.

A few specimens of this species were found at Balthazar, March 15, also on the Mirabeau estate, March 25, on herbage in open places, and on the Mount Gay estate, October 10, upon hill-sides, on herbage.

This is an exceedingly common insect in the eastern part of San Domingo, and it is not rare in Cuba, Florida, and Texas.

MADURA, Stål.

MADURA PERFIDA, Stål.

Madura perfida, Stål, Stettin. ent. Zeit. xxiii. p. 304.

Three specimens were taken on the Lake Antoine estate, in March and September, on herbage.

MARGUS, Dallas.

MARGUS INORNATUS, Dist.

Margus inornatus, Dist. Biol. Centr.-Am., Hem.-Heter. pp. 137, 365, pl. 13. fig. 18.

Two specimens were found near Balthazar, March 19, at an elevation of 1250 feet above the sea, upon an open place, on herbage. A third specimen was taken on the Mount Gay estate, August 28, at an elevation of 700 feet, on herbage.

CATORHINTHA, Stål.

CATORHINTHA SELECTOR, Stål.

Catorhintha selector, Stål, Öfv. Vet.-Akad. Förh. 1859, p. 471.

Many specimens were collected on the Mount Gay estate, April 5, at an elevation of 400 feet above the sea, where they were found on the herbage in cocoa orchards. Others were taken on the Lake Antoine estate, April 13, at an elevation of 350 feet, from herbage in the second-growth woods.

ANASA, Am. et S.

1. ANASA SCORBUTICA (Fabr.).

Cimex scorbaticus, Fabr. Syst. Ent. p. 706.

Five specimens were taken on the Lake Antoine estate, April 13, at an elevation of 350 feet above the sea, in second-growth woods on the bank of a stream.

2. *ANASA BELLATOR* (Fabr.).

Cimex bellator, Fabr. Mant. Ins. ii. p. 286.

Two specimens were secured on the Black Forest estate and Balthazar, April 6, from weeds in a nutmeg orchard, at an elevation of 400 feet above the sea.

ZICCA, Am. et S.*ZICCA TÆNIOLA* (Dallas).

Clavigralla tæniola, Dallas, List, ii. p. 514.

Six specimens were taken near Balthazar, April 2, at an elevation of 1900 feet above the sea, on grassy and weedy land, from herbage.

ALYDUS, Fabr.*ALYDUS PALLESCENS*, Stål.

Alydus pallescens, Stål, Rio Jan. Hemipt. i. p. 34.

Numerous specimens were collected in most parts of the island. At Balthazar they were brushed from herbage, in open grassy and weedy places, in April; on the Lake Antoine estate they came to the light at night, on March 15. At St. George's specimens were taken, August 22, in open swampy places on herbage, and at the same place as late as September 30.

LEPTOCORISA, Latr.*LEPTOCORISA FILIFORMIS* (Fabr.).

Cimex filiformis, Fabr. Syst. Ent. p. 727.

Several specimens were taken on the Mount Gay estate, April 5, where they were brushed from herbage in the cocoa orchards. Other specimens were secured at the same place, September 16, from herbage.

HARMOSTES, Latr.*HARMOSTES SERRATUS* (Fabr.).

Acanthia serrata, Fabr. Ent. Syst. iv. p. 75.

A few specimens were swept from herbage on the Mount Gay, Mirabeau, and Lake Antoine estates in the spring and autumn.

CORIZUS, Fallen.1. *CORIZUS HYALINUS* (Fabr.).

Lygeus hyalinus, Fabr. Ent. Syst. iv. p. 168.

Five specimens of the ordinary type were found on the island. They were taken at Balthazar and on the Mount Gay estate in April and August.

2. *CORIZUS SIDÆ* (Fabr.).

Lygæus sidæ, Fabr. Ent. Syst. iv. p. 169.

Dr. Stål has described a variety of this species as *C. pictipes*. The insect is very variable in size, colour, form, and pattern of marking, much depending upon its condition at time of capture.

Numerous specimens were collected in nearly all parts of the island, both in the early part of the year and as late as the middle of August.

JADERA, Stål.

JADERA LATERALIS, Stål.

Jadera lateralis, Stål, Stettin. ent. Zeit. xxiii. p. 307.

Several specimens of this bright-coloured species were taken at Balthazar, April 1, and on the Mount Gay estate, April 5, also in August and September, on herbage.

BERYTIDÆ.

METACANTHUS, Costa.

METACANTHUS CAPITATUS, sp. nov.

Pale rufo-testaceous. Form similar to *M. elegans*, Curtis, but with proportionately longer legs and antennæ. Head black, rounded, polished, with a pale spot at base, the tylus prominent, vertical; antennæ very slender, yellow, the basal joint nearly as long as the posterior femur, a little thickened and dusky at tip, articulation of the next two joints a little dusky, the fourth thick, fuscous, about half as long as the third; rostrum dull yellow, reaching to the middle coxæ, becoming more slender towards the tip. Pronotum closely distinctly punctate, the posterior lobe large, swollen, with the middle line a little elevated, and tuberculate at the posterior end; antehumeral surface transversely indented, the posterior margin reflexed each side; lateral line obliterated, present as a carina on the short, collar-like anterior lobe, this lobe fulvous, with a pale anterior margin, from each side of which a pale short spine projects obliquely upwards. Legs long, slender, honey-yellow; the tibiæ setiform, paler, annulated with black; the femora a little swollen and deeper coloured at tip, tarsi blackish on the apical half. Scutellum small, tumid, armed with a long, curved, pale spine which projects backwards. Hemelytra almost transparent, tinged with testaceous, the costal border a little arcuated, costal area and clavus obsolete and sparsely punctate. Beneath smooth, pale testaceous, the sternum pale piceous, abdomen straight; venter more distinctly pubescent at tip, hardly wider at base than at apex.

Length to end of venter $3\frac{1}{2}$ mm.; width of pronotum $\frac{2}{3}$ mm.

Six specimens of this insect were collected on the Mount Gay estate, on the leeward side of the island. They were beaten from herbage, at altitudes between 200 and 400 feet, from August 21 to 31st.

LYGÆIDÆ.

NYSIUS, Dallas.

1. NYSIUS PROVIDUS, sp. nov.

Oblong, narrow; greyish yellow, the upper surface more or less clouded with fuscous, greyish pubescent. Head long, nearly as wide between the front of the eyes as the width of the apex of pronotum; the surface closely pubescent, marked along the middle with a slender, yellow, feebly raised line; the surface between the eyes granulated, the granules each side of middle arranged in lines, punctures few, indistinct; the tylus pale fulvous anteriorly, bounded each side at base by a small knob placed next a dark band; middle of gula, including the bucculæ, blackish piceous; rostrum slender, fusco-piceous or tinged with fuscous, reaching between the posterior coxæ; antennæ dull testaceous, the base and inner side of basal joint, base and apex of second, and base of fourth joint blackish. Pronotum longer than wide, obscurely bilobed, impressed and rather abruptly sinuated on the sides behind the anterior lobe; the surface transversely wrinkled, unevenly punctate with piceous, less so on the anterior lobe, the apical border black; the surface before the humerus spread with a blackish spot, which includes the knob-like angle, but leaves a yellow spot next thereto; the lateral margin obsoletely carinate, indented before the anterior angle, the middle with a pale yellow, slender line; posterior margin a little arched, sometimes bordered with black, having the posthumeral border depressed, expanded, and pale yellow. Mesosternum black in the middle, with the costal segment and the coxa tipped with brown; the anterior and posterior coxæ mostly testaceous. Legs testaceous, the femora banded with concurrent dark brown spots; the tibiæ piceous at base and tip, and the tarsi piceous, excepting the testaceous base. Scutellum obsoletely punctate, with a dark, transverse, sublunate callosity, having a blackish cavity in front of it at base, the apical division paler, acutely carinate at tip. Hemelytra dull whitish or testaceous, punctate with fuscous, finely pubescent, acutely prolonged, with the cuneus rufous; the costal area narrow, pale testaceous, with a few brown points, the veins interrupted with brown; membrane semitransparent, with the veins more or less brownish. Venter rufo-testaceous, more or less sprinkled with darker brown; the ovipositor blackish.

Length to tip of venter $3\frac{3}{4}$ –5 mm.; width of pronotum 1–1½ mm.

This is the common and widely distributed species which has hitherto been wrongly referred to *N. scolopax*, Say. The true *N. scolopax* has a rostrum which reaches to the middle of the venter, which is not the case in the species here described. Our species inhabits North America from Quebec to Arizona, from thence it spreads into Mexico and Central America, and following south it is found on the Isthmus of Panama, and in Colombia and Northern Brazil. In the West Indies it occurs in Trinidad, Grenada,

St. Vincent, Porto Rico, San Domingo, and Cuba, and from thence it extends through Florida into all of the Eastern States as far as Maine.

Possibly it is the most variable species of the group as yet discovered, for it appears in all states of marking and colouring, from the pale testaceous with few spots to the dark grey with all degrees of clouding and specking.

In Grenada specimens were taken at Balthazar, in open weedy places on herbage, April 3, at an altitude of 250 feet; also on the Lake Antoine estate, April 13, at an altitude of 350 feet, on the shores of a stream in the midst of second-growth timber, and in August at various other localities on the island.

2. *NYSIUS INEQUALIS*, sp. nov.

Subovate, broad, a little more robust than *N. californicus*, Stål. Pale dull fulvous, punctate with fuscous yellowish pubescence. Head subacute, a little longer than wide, fulvous, with a pale line stretching from base to end of tylus; inner border against the eyes pale yellow, followed by a wider black stripe, the antenniferous lobe also pale yellow; gula black along the middle; antennæ dull fulvous, the basal joint blackish on the under surface at tip, the second joint longer than the third, tipped with black, the apical joint blackish, a little longer than the third; bucculæ pale; the rostrum more or less fuscous, reaching to the middle coxæ. Pronotum trapeziform, obliquely narrowing towards the apex, the sides not arcuated, with the margin feebly reflexed, the anterior lobe short, with the transverse incisure carried out to the excavation next the margin, but not through it; the surface distinctly and closely punctate, having a pale callous line each side of the middle throughout its length; the disk often infuscated, the middle line grooved, having a pale callosity on its posterior end at the margin, apex before the callous line deeply sunken, the lateral submargin grooved and lineated with fuscous; humeri with an acute knob, behind which the margin is indented; the posterior margin thick, deflexed, arched, a little scalloped; the posthumeral outer edge pale and feebly expanded. Under surface rufo-fulvous, whitish pubescent, having an interrupted blackish line along the sides, the sternum and base of venter blackish, and the venter mostly fulvous, with the black lines continued along the sides. The legs dull fulvous, pale at base, flecked with brown on the femora, the base and tip of the tibiæ and tarsi more or less fuscous. Scutellum transverse, punctate, pubescent, blackish at base, or each side of middle, the middle line and lateral raised margin pale testaceous, the apex carinate, acute on the tip. Hemelytra pale testaceous or whitish, carried back in a long tapering curve; the veins more or less interrupted with brown, as also the apical and outer border of the clavus and posterior border of the corium; apex of the cuneus darker brown; the costal area narrow, pale, with outer edge strongly reflexed; membrane long and narrow, the veins often marked with long smoky spots, the middle to tip with a long

blackish stripe. Connexivum sharp-edged, thin, recurved, dull testaceous or pale fulvous; disk of the tergum black each side, middle line of the last two segments also black.

Length to tip of venter $3\frac{1}{2}$ – $4\frac{1}{2}$ mm.; width of pronotum $\frac{1}{2}$ – $1\frac{3}{4}$ mm.

This remarkable species was found in abundance on the Mirabeau estate, on the windward side of the island. It has also been taken in Florida and Cuba. The notes of capture are as follows:— March 25, at an altitude of 500 feet above sea-level, on herbage in open places near a stream of water; April 7, at an altitude of 250 feet, came to light in the night, and was also swept from herbage; also April 13 and 27, in second-growth woods and in weedy places.

This is a variable species, approaching very near to *N. californicus*, Stål, from which it can be at once distinguished by the longitudinal callosities of the pronotum.

ISCHNORHYNCHUS, Fieber.

ISCHNORHYNCHUS CHAMPIONI, Dist.

Ischnorhynchus championi, Dist. Biol. Centr.-Am., Hem.-Het. p. 193, pl. 19. fig. 3.

A few specimens were taken at several localities in the island. At Balthazar they were brushed from herbage in cocoa orchards, in shady and damp places, on March 23; at Chantilly they occurred at an elevation of 500 feet, on May 5, in second-growth thickets. Later in the year they were found on the Caliveny estate, near sea-level, September 1, on the foliage of dry scrubby growth. On October 16 they were found in a similar, but damp place, near St. George's.

NINUS, Stål.

NINUS NOTABILIS, Dist.

Ninus notabilis, Dist. *t. c.* p. 191, pl. 19. fig. 4.

This species was found in considerable numbers on the Vendôme estate in September, where it was beaten from herbage on marshy land. It was taken also on the Mount Gay estate, and upon the Mirabeau estate, in open places near a stream of water, on herbage, March 25.

NEONINUS, Dist.

NEONINUS ILLUSTRIS, Dist.

Neoninus illustris, Dist. *t. c.* p. 192, pl. 19. fig. 5.

Specimens were taken at Balthazar, March 23, in damp and shady places, from herbage, in cocoa orchards. It was also found upon the Mirabeau estate, April 7, where it came to the light at night.

BLISSUS, Burm.

BLISSUS LEUCOPTERUS (Say).

Lygaeus leucopterus, Say, Heteropt. New Harmony, p. 14, no. 5.

This is the common "Chinch Bug" of the United States, Mexico, and the Greater Antilles. It attains a large size and is more variable in Grenada, both in size and marking, than is commonly found to be the case in the eastern United States. Specimens were collected on the Mount Gay and Caliveny estates in June and September, on weedy places in second-growth thickets near a stream of water.

NINYAS, Dist.

NINYAS STRABO, Dist.

Ninyas strabo, Dist. t. c. p. 194, pl. 19. fig. 6.

This neat little insect was found at several places on the island. On the Mirabeau estate it was taken, March 25, on herbage in open places near a stream of water. It was found also at Balthazar, and on the Mount Gay estate, August 20; also at the Grand Étang, September 15, among piles of weeds and waste from the stable.

PACHYGRONTHA, Germ.

1. PACHYGRONTHA ŒDANCALODES, Stål.

Pachygrontha œdancalodes, Stål, Enum. Hemipt. pt. 4, 1874, p. 139.

Two specimens of this small form were taken at Granville, April 13, at an altitude of 250 feet above the sea, where they came to the light at night. One specimen was captured at sea-level, March 26, on herbage in a thicket growing in a swamp.

2. PACHYGRONTHA BIMACULATA, Dist.

Pachygrontha bimaculata, Dist. t. c. p. 393, pl. 34. fig. 23.

Numerous specimens of this species were secured on the Mount Gay estate, April 1-5, at the light, and September 30, at an altitude of 500 feet above the sea, in second-growth woods.

3. PACHYGRONTHA LONGICEPS, Stål.

Pachygrontha longiceps, Stål, Enum. Hemipt. pt. 4, 1874, p. 140.

This large species was moderately numerous at Balthazar, April 7, at an elevation of 250 feet above the sea, where it was swept from herbage in open weedy places near a stream. It was also found on the Vendôme and Mount Gay estates, August 21 and September 8, upon herbage in open and marshy places.

MYODOCHA, Latr.

MYODOCHA UNISPINOSA, Stål.

Myodocha unispinosa, Stål, Enum. Hemipt. pt. 4, 1874, p. 147.

More than a dozen specimens of this peculiar insect were collected at Balthazar and other localities. At Balthazar it was beaten from herbage, in open places, at night, on March 19. On the Chantilly estate it was found March 7, on herbage in the cocoa orchards. One specimen was captured in August, at Balthazar.

PAMERA, Say.

1. PAMERA VINCTA, Say.

Pamera vincta, Say, Heteropt. New Harmony, p. 16, no. 3.

This common species is widely distributed throughout the littoral region of the United States south of Pennsylvania. *Pamera parvula*, Dallas, is a synonym of this form, which should be replaced by the name given above. It has a wide distribution, spreading from Central Brazil through the regions of Colombia, Central America, Mexico, and the Antilles into the United States.

In Grenada it appears to be as common as in Cuba and San Domingo. Specimens were taken at Balthazar, 1900 feet above the sea, April 2, in open grassy places, upon herbage. It was also found in August on the Mount Gay estate, and in other localities on the island.

2. PAMERA BILOBATA, Say.

Pamera bilobata, Say, Heteropt. New Harmony, p. 17, no. 7.

This is also a common species with a wide distribution southward and westward from the United States to Brazil and Colombia. At Balthazar it occurred at an altitude of 1900 feet above the sea, April 2, on grassy and weedy lands, where it was beaten from herbage; it was also taken as late as April 25, in second-growth thickets on plants.

3. PAMERA CURVIPES, Stål.

Pamera curvipes, Stål, Enum. Hemipt. pt. 4, 1874, p. 148.

A variety of this species was found in moderate abundance at Balthazar, Chantilly, and other places. It was met with in March under decaying vines and weeds on a damp rock; while the greater number of the specimens were obtained later in the season on rank herbage and in thickets.

OZOPHORA, Uhler.

1. OZOPHORA CONSANGUINEA (Dist.).

Davila consanguineus, Dist. Biol. Centr.-Am., Hem.-Het. p. 395, pl. 35, fig. 2.

This species is placed in *Davila* by Mr. Distant, but it is congeneric and perhaps identical with *O. burmeisterii*, Guérin, from

Cuba. Many specimens were collected at Balthazar, April 7, from herbage on open weedy places near a stream of water.

2. *Ozophora pallescens* (Dist.).

Davida pallescens, Dist. t. c. p. 395, pl. 35. fig. 3.

This is the smallest species of the genus which has thus far been discovered. It has likewise been placed in the genus *Davida* by Mr. Distant. Specimens were collected at Balthazar, Chantilly, and other localities, on the same kinds of herbage as the preceding species.

PTOCHIOMERA, Say.

PTOCHIOMERA OBLONGA (Dist.).

Plociomera oblonga, Dist. t. c. p. 209, pl. 17. fig. 24.

Numerous specimens of this insect were taken at Balthazar, March 27 and later, on herbage in cocoa orchards near water.

The names *Plociomerus* and *Plociomera* are later inventions of authors and are not to be found in the writings of Mr. Say. That used above is the spelling given by Mr. Say, and there seems to be no satisfactory reason for changing it.

PYGÆUS, gen. nov.

Form similar to *Ptochiomera*, but with the pronotum transverse, obsoletely constricted, with the lateral raised margin callous along the sides of the almost flat posterior lobe, carried forward very slender to the anterior angle. Antennæ thick, a little longer than the head and pronotum united; the first joint not so long as the head, not thickened towards the tip; second a little longer, growing thicker towards the tip; the third much shorter, thicker, fusiform; the fourth not quite so thick as the third, subfusiform, acute at both ends. Rostrum slender beyond the basal joint, reaching the middle coxæ, the basal joint as long as the gula, the second joint a little longer. Head moderately long, in front of the eyes narrower than the apex of pronotum; eyes large and prominent; the face tapering, sloping forwards, with the tylus prominent; the bucculæ very low, slender. Prosternum collar-like in front of the anterior coxæ. Fore femora moderately thick, without spines, posterior femora long, curved at the tip. Scutellum a little longer than wide, acute and carinate at the tip, the sides strongly decurved. Hemelytra long oval, with a tapering curve posteriorly, the membrane a little protracted behind the abdomen, the costal border thick and slightly reflexed, a little sinuated, with the embolium long and broadly grooved.

PYGÆUS PALLIDUS, sp. nov.

Long oval, fulvous, polished, minutely pubescent, and feebly punctate; antennæ darker beyond the testaceous basal joint. Rostrum, coxæ, and legs testaceous. Underside highly polished. Posterior lobe of pronotum punctate, anterior lobe smooth; pos-

terior margin a little deflexed, sometimes slenderly infuscated. Scutellum at base coarsely and deeply punctate. Claws punctate in lines, the corium a little less coarsely punctate, with the cuneus dusky; the membrane whitish, immaculate.

Length $1\frac{3}{4}$ mm.; width of pronotum $\frac{3}{4}$ mm.

This plain little insect inhabits also Cuba, Texas, Florida, the eastern side of the United States as far north as Tewksbury, Mass., and spreads into Lower Canada. It is sometimes quite common in Maryland. The four specimens from Grenada were secured at Balthazar, August 4, at an altitude of 250 feet above the sea, in open places, where they were flying at sunset, on the Mount Gay estate, August 20 to 25, and September 15, on the Grand Étang road.

SALACIA, Stål.

SALACIA PICTURATA, Dist.

Salacia picturata, Dist. Biol. Centr.-Am., Hem.-Het. p. 406, pl. 35. fig. 19.

Five specimens of this species were taken at Balthazar and other places on wet sand, or on weeds close to running water, April 15, and also August 17 under bundles of weeds.

In placing this insect in the genus *Salacia*, I have merely followed the lead of Mr. Distant, because no type of that genus is within my reach, and I desire to avoid multiplying genera in this much-divided family.

TRAPEZUS, Dist.

TRAPEZUS FASCIATUS, Dist.

Trapezus fasciatus, Dist. t. c. p. 217, pl. 20. fig. 5.

Three specimens of this insect were collected on the Grand Étang, August 13, at an elevation of 1900 feet above the sea. They were beaten from masses of brush in a clearing of the damp forest. One specimen was taken September 15.

PETISSIUS, Dist.

PETISSIUS DIVERSUS, Dist.

Petissius diversus, Dist. t. c. p. 407, pl. 35. fig. 22.

Numerous specimens of this little insect were collected at Balthazar, April 22, in open weedy places, among second-growth thickets, and on the Chantilly estate, April 15, where they were flying about the flowers of an orange-tree.

GONATAS, Dist.

GONATAS DIVERGENS, Dist.

Gonatas divergens, Dist. t. c. p. 219, pl. 20. fig. 10.

Many specimens of this species were taken at Balthazar, April 8, from wet sand on the banks of a stream, where they

were alighting from the air. Others were found on the Mount Gay estate, August 20–25, under piles of weeds and leaves.

RHAPTUS, Stål.

RHAPTUS COLLINUS, Dist.

Rhaptus collina, Dist. *t. c.* p. 410, pl. 36. fig. 3.

Seven specimens of this insect were found on the Mount Gay estate, where they were either beaten from herbage in open places or taken from beneath piles of weeds and leaves.

MELANOCORYPHUS, Stål.

MELANOCORYPHUS BICRUCIS (Say).

Lygæus bicrucis, Say, Journ. Acad. Nat. Sci. Philad. iv. 1825, p. 322.

Four specimens of this common North-American insect were taken on the Mount Gay estate, August 21–26, on herbage.

ONCOPELTUS, Stål.

1. ONCOPELTUS FASCIATUS (Dallas).

Lygæus fasciatus, Dallas, List, iv. p. 538.

Five specimens were found on the Mount Gay estate, August 26 and 30. They were beaten from herbage on an open flat tract near the sea.

2. ONCOPELTUS CINGULIFER, Stål.

Oncopeltus (Erythrischius) cingulifer, Stål, Enum. Hemipt. pt. 4, 1874, p. 103.

Numerous specimens were collected at Balthazar, March 7 and April 2, from herbage in second-growth woods. One specimen was secured at Granville, March 27; another was found on the Mount Gay estate, April 5, on herbage; and another at the same place on August 26.

3. ONCOPELTUS VARICOLOR (Fabr.).

Lygæus varicolor, Fabr. Ent. Syst. iv. p. 149.

A few specimens of this beautiful species were found at Balthazar and other places in April, on open places upon herbage. One was also found on the Lake Antoine estate, another on the Mirabeau estate, and yet another was found at Windsor, on the windward side of the island, March 28, on herbage in an open area at an elevation of 500 feet above the sea.

PYRRHOCORIDÆ.

DYSDERCUS, Am. et S.

DYSDERCUS ANNULIGER, sp. nov.

Form of *D. suturellus*, H.-Schf., and differing from that species

in having a white ring at the base of the apical joint of the antennæ, and in lacking the white cross on the inner margin of the corium and clavus. There are two principal patterns of marking in this insect: one in which the upper surface is dusky black, with the exception of the head, the anterior two-thirds of the pronotum, and the base of scutellum, which are red; in the other the insect is red above, excepting the base of the pronotum and the membrane, which are black. In the female the underside is red with a black edge to the basal margin of the ventral segments and pleural sutures. In the male most of the venter is white, as are also the collum and posterior border of the pleural pieces. The rostrum of the male usually reaches to the middle of the second ventral segment, but in the female it extends only to the basal segment.

Varieties occur which connect the two extremes of colour. The legs vary in the amount of red upon the femora and tibiæ. Many of the specimens have these members piceous blackish.

Length to tip of abdomen ♂ 8-10, ♀ 10-12 mm.; width of pronotum $2\frac{3}{4}$ -4 mm.

This species is also closely related to *D. ruficollis*, Linn., but it is a much larger insect, with a longer head, exactly as in *D. suturellus*, H.-Schf., and with a proportionally longer rostrum in both sexes. In *D. ruficollis* all the specimens I have examined were marked with a more or less distinct black dot behind the middle of the corium.

Many specimens were collected on both sides of the island.

At Balthazar they were found March 30, in considerable numbers upon decaying oranges in shady places. On the Mount Gay estate (leeward) they were taken, April 5 and 25, in the cocoa orchards, where they were brushed from the undergrowth. In August and September they were found on the Mount Gay estate and St. George's.

The white colour of the base of the fourth joint of the antennæ is sometimes indistinct, but not quite absent.

CAPSIDÆ.

LOPUS, Hahn.

LOPUS MILITARIS, sp. nov.

Long oval, pubescent, bright yellow beneath, the markings rufo-fulvous above. Head short, with a dusky oval loop on the cranium, open at base, and closed at the base of the tylus; the tylus stout, black, the cheeks and throat bright yellow; rostrum yellow, fuscous from the middle to the tip, reaching behind the middle coxæ, the basal joint thickened at tip, reaching upon the sternum; antennæ black, long, tapering, the second joint rod-shaped, about as long as the more slender third and fourth joints united; eyes black, very prominent. Pronotum dark brown, dull, pubescent, with the collum, and a broad reddish stripe running

back from it, widening at the basal margin, narrowing between the callosities and sending off a slender line behind them; lateral margins sinuated, acutely reflexed, excepting the sides of the prominent collum; margin of the propleura also reflexed. Legs black, orange or rufous on the coxæ and base of femora. Scutellum almost flat, flavo-rufous, a little fuscous near the basal angles. Hemelytra dark brown, greyish-pubescent, with the cuneus and inner edge of the clavus fulvous; costal areole long, narrow and almost straight, the membrane dark brown, the vein of the areole pale. Venter yellow, invested with long whitish pubescence, the sides obscured with a series of spots, and the ovipositor black.

Length to end of venter 5-5½ mm.; width of pronotum 2¼ mm.

Only two specimens, a male and a female, of this bright insect were secured. They were found on an open and weedy place upon herbage, on La Force estate, at an elevation of about 350 feet above the sea.

CALOCORIS, Fieber.

CALOCORIS (MEGACÆLUM) RUBRINERVIS (Dist.).

Creontiades (Megacælum) rubrinervis, Dist. Biol. Centr.-Am., Hem.-Het. p. 237, pl. 23. fig. 12.

A fine series of specimens were brought back from the island. They were found on both sides of the region. At Balthazar they were taken April 7, from plants in open weedy places near a stream of water. In March they were found on the Mirabeau and Lake Antoine estates. In August they were swept from herbage on the Mount Gay and Lake Antoine estates.

The form of the sides of the head and proportions of the antennæ seem to place this species in *Calocoris* rather than in *Megacælum*.

MELINNA, Uhler.

MELINNA MODESTA, Uhler.

Melinna modesta, Uhler, Entomol. Americana, iii. 1887, p. 69.

Several specimens were taken on the Mount Gay estate and at St. George's, late in August and early in September, by sweeping the herbage.

In Maryland this species occurs in late summer on willows, and also on undergrowth of thin woods and on pine-trees, near streams of water.

PHYTOCORIS, Fabr.

PHYTOCORIS EXIMIUS, Reuter.

Phytocoris eximius, Reuter, Öfv. Vetensk.-Akad. Förh. 1875, no. 9, p. 67.

Three specimens, all different in markings, were found at Balthazar, March 2, and at St. George's in September. They came to the light at night.

This is a common species with an extensive distribution. It inhabits Colombia, Central America, Mexico, California, Washington State, Oregon, Colorado and Utah, New Mexico, Arizona, Minnesota, Lower Canada, and all the Atlantic States from Maine to Florida, and the Gulf States west into Texas, as also San Domingo and Cuba. Degrees of maturity affect its colours and pattern of marking.

PÆCILOSCYTUS, Fieber.

PÆCILOSCYTUS (LYGUS) CUNEATUS (Dist.).

Lygus cuneatus, Dist. Biol. Centr.-Am., Hem.-Het. p. 435, pl. 37. fig. 24.

This is a common species in the Antilles and on the borders of the adjoining continent. It is found in Central America, Mexico, Texas, and Florida, and apparently as far north as Virginia. Specimens from the last-named State have passed through my hands, but, as their antennæ were mutilated, a slight element of uncertainty exists in the identification.

Many specimens were collected on the Mirabeau estate, April 7, as they came to the light at night. At Balthazar and on the Mount Gay estate they were swept from herbage in August.

FULVIUS, Stål.

1. FULVIUS ATRATUS, Dist.

Fulvius atratus, Dist. *t. c.* p. 282, pl. 27. fig. 18.

Several specimens of this species were taken at Balthazar, March 7, and also early in August, in bushy places on herbage and at the light. Others were captured at Chantilly, and on the Grand Étang they were met with at an altitude of 1900 feet upon decaying weeds. In the United States this species frequents fungi in damp, shady borders of woods, and it flies freely in the sunshine.

2. FULVIUS LUNULATUS, sp. nov.

Black, polished, oblong-ovate, with the head shorter than normal, wider than the apex of pronotum, and swollen between the eyes, vertex with a faint impressed line; antennæ dark brown, the second joint paler, very long, and white on the apical one-third, the third and fourth a little more slender than the second, but not setaceous; rostrum piceous, reaching behind the posterior coxæ. Pronotum wider than long, tumidly convex on the middle, broadly indented, and grooved in the centre behind the collum, the posterior submargin bounded by an incised line; humeral angles acutely prominent, the lateral margin deeply sinuated. Scutellum piceous black, highly polished, convex. Legs pale fuscous, the anterior femora darker. Hemelytra black, or brownish black, marked with a minute pale fleck at the base of

the corium, and with the inner border of the clavus slenderly fulvous; corium with an obliquely placed lozenge-shaped white spot on the basal third, and a smaller oval spot of the same colour on the inner half of the cuneus; membrane smoke-brown, showing a slender edge of white against the margin of the cuneus.

Length to tip of venter $2-2\frac{1}{4}$ mm.; width of pronotum $\frac{2}{3}$ mm.

Several specimens were collected on the Black Forest estate and about the Grand Étang, on the windward side of the island, from August 13 to 19, at an altitude of 1500 to 1900 feet above the level of the sea, under leaves on the ground, on bark of decaying logs in a clearing, and also beaten from masses of brush and leaves.

ECCRITOTARSUS, Stål.

1. ECCRITOTARSUS ATRATUS, Dist.

Eccritotarsus atratus, Dist. *t. c.* p. 285, pl. 26. fig. 20.

This is a common species in the West Indies, Mexico, Central America, and Colombia. It inhabits also California and Texas. Numerous specimens were taken at Balthazar, at an elevation of 1900 feet above the sea, April 2, on herbage, in open grassy places near water. It was found also on the Mount Gay estate in August, flying at sunset.

2. ECCRITOTARSUS INCURVUS, Dist.

Eccritotarsus incurvus, Dist. *t. c.* p. 285, pl. 26. fig. 19.

Numerous specimens were found at Balthazar, also on the Mirabeau, Mount Gay, and Lake Antoine estates, either in March or August, on grass and herbage near streams of water. In the southern United States it lives in midsummer on low herbs in open places on sandy beaches of streams.

CYRTOCAPSUS, Reuter.

CYRTOCAPSUS CALIGINEUS (Stål).

Capsus caligineus, Stål, Freg. Eugenie Resa, Ins. p. 258; Dist. *t. c.* p. xx.

Pirithous pallipes, Dist. *t. c.* p. 303, pl. xxix. fig. 11.

A few specimens were taken at Balthazar and on the Mirabeau estate in March and April in weedy places.

ENGYTATUS, Reuter.

ENGYTATUS GENICULATUS, Reuter.

Engytatus geniculatus, Reuter, Öfv. Vetensk.-Akad. Förh. 1875, no. 9, p. 83.

Neoproba varians, Dist. *t. c.* p. 271, pl. 26. fig. 7.

This species is distributed all the way from Colombia to Mexico,

the Antilles, Texas, and Florida. In San Domingo it lives on various kinds of weeds growing on the sides of the roads and in neglected gardens.

Numerous specimens were collected on both sides of Grenada. On the Mount Gay estate they were found, late in August, on herbage in the open country. At St. George's they were taken during the same month, at night, from herbage.

DICYPHUS, Fieber.

DICYPHUS SEPARATUS, sp. nov.

Long and moderately narrow, pale greenish, erect-pubescent, with the basal joint and apex of the second joint of antennæ black; punctures of the hemelytra coarse, sparse, black; corium with a large black dot a little behind the apex, with the apex, the posterior border faintly, the tip of scutellum, and the end of the cuneus also black. Head moderately short, highly polished, remotely pubescent; eyes dark brown; antennæ pale green, minutely pubescent, a little longer than from tip of head to apex of clavus; rostrum testaceous, dusky at tip, reaching almost to the apex of the posterior coxæ. Pronotum obsoletely punctate, marked with a deeply-impressed longitudinal line, the posterior margin deeply sinuated. Legs pale greenish, with the apex of the tarsi piceous. Scutellum a little punctate, set with erect hairs. Corium and clavus with remote erect fuscous pubescence; cuneus minutely striato-punctate, long, sinuated on the inner border; the membrane long, iridescent, with the veins of the areole a little dusky.

Length to tip of abdomen 3 mm., to tip of membrane 4 mm.; width of pronotum $\frac{7}{8}$ mm.

This species extends its habitat from Cambridge, Mass., to Florida and Texas; it is also found in California.

Six specimens of this insect were taken on the Mount Gay estate, October 16, on low herbage.

PARACARNUS, Dist.

PARACARNUS MEXICANUS, Dist.

Paracarnus mexicanus, Dist. Biol. Centr.-Am., Hem.-Het. p. 445, pl. 39. fig. 2.

This species was captured at Balthazar, March 23, in a cocoa orchard in a damp situation. On the Mirabeau estate it was found March 25, on herbage near a stream of water.

ANNONA, Dist.

ANNONA LABECULATA, Dist.

Annona labeculata, Dist. t. c. p. 446, pl. 39. fig.

One specimen was found near Balthazar, March 23, in a shady damp locality, on herbage, in a cocoa orchard.

HALTICUS, Burm.

HALTICUS UHLERI, Giard.

Halticus uhleri, Giard, C. Rend. Soc. Biol. sér. 9, iv. p. 81.

Halticus minutus, Uhler, in Popenoe, Report, Kansas, 1889, p. 212, pl. 9. figs. 10 & 12.

Calocoris canus, Dist. t. c. p. 430, pl. 37. figs. 11 & 12.

Several specimens were found, most of which were winged. A brachypterous specimen was taken, March 25, on the Mirabeau estate; the other specimens were found, in August, among dry weeds and rubbish on damp ground at Balthazar and Chantilly.

EPISCOPUS, Reuter.

EPISCOPUS ORNATUS, Reuter.

Episcopus ornatus, Reuter, Öfv. Vetensk.-Akad. Förh. 1875, no. 9, p. 90.

Lygus vividus, Dist. t. c. p. 433, pl. 37. fig. 18.

In the United States this species is distributed from New York to Florida, and from thence to Cuba and San Domingo. It abounds in midsummer in fields from which wheat has been cut, and where it lives upon the *Ambrosia artemisiifolia*.

In Grenada it was common at Balthazar and on the Mirabeau estate, on weeds, both in April and August.

PSALLUS, Fieber.

PSALLUS POLITUS, sp. nov.

Oval, black, highly polished, minutely pubescent. Head large, triangular, almost vertical, moderately convex, rufo-piceous beneath, with a few indented points on the vertex, the width across the eyes a little greater than the apex of the pronotum; antennæ yellow, short, moderately stout, the two apical joints and sometimes the distal end of the second joint fuscous, the second nearly as long as the head and pronotum united; rostrum testaceous, piceous at base, the tylus also piceous. Pronotum transverse, simple, moderately convex, obliquely narrowed, and abruptly decurved on each side in front, the surface highly polished, sparsely pubescent, obsoletely punctate. Scutellum nearly equilateral, moderately convex, acute at tip, obsoletely wrinkled. Legs testaceous, the tarsi usually more or less dusky. Hemelytra highly polished, minutely greyish pubescent, covered with shallow punctures; the membrane smoke-brown. Pleural pieces and sternum piceous. Venter highly polished, not apparently punctate, often rufo-piceous at base.

The male has the second joint of antennæ a little thickened at apex and often fuscous there.

Length to tip of venter $1\frac{3}{4}$ -2 mm; width of pronotum $\frac{3}{4}$ mm.

Nineteen specimens of this little insect were secured in various places on the windward side of the island. Of these both sexes

were found on the Mirabeau estate, April 7, at an altitude of 250 feet; on the Mount Gay estate, at levels from 200 to 400, on August 21; and on the Chantilly estate, September 17, at an altitude of 500 feet. Some came to the light at night, others were taken while flying at sunset, and some others were swept from herbage in open places.

RHINACLOA, Reuter.

RHINACLOA FORTICORNIS, Reuter.

Rhinacloa forticornis, Reuter, Öfv. Vetensk.-Akad. Förh. 1875, no. 9, p. 88.

This species was found at Balthazar, St. George's, and on the Mount Gay estate in August, upon herbage growing in swampy ground.

CERATOCOMBIDÆ.

CERATOCOMBUS, Signoret.

1. CERATOCOMBUS BRASILIENSIS, Reuter.

Ceratocombus brasiliensis, Reuter, Monogr. Ceratocomb. p. 7, no. 3, fig. 3.

This species is common in both St. Vincent and Grenada, and it seems to have a general distribution from Brazil to the Antilles. Numerous specimens were collected at Balthazar, March 5, under decaying leaves on a damp rock, next the shady bank of a stream. At Woburn one specimen was found on the Windsor estate, at an elevation of 500 feet, March 28, under decaying leaves on wet sand on the shady bank of a stream. In August it was abundant on the Mount Gay estate, at an elevation of 1900 feet above the sea, in a clearing of the damp forest, with masses of brush and leaves.

Individual specimens vary somewhat in the extent of the white colour near the costal margin of the hemelytra. In some of them scarcely more than a white dot is present, while in others the colour is extended into a broad streak. In a small proportion of the specimens the white is obsolete or absent.

This form is closely related to, if not the same as, one which belongs to the Gulf States and Florida; but, as only soiled specimens have been accessible to me, it is not possible to express a settled opinion as to the identity of these insects.

2. CERATOCOMBUS MINUTUS, sp. nov.

Oblong-ovate, dull black; form similar to *C. brasiliensis*, Reut., but small, and comparatively wider across the hemelytra. Head subconical, longer than wide, a little narrower than the apex of the pronotum, minutely pubescent, sometimes tinged with rufous, indented in the middle, with the tylus wide and prominent, and the eyes projecting beyond the sides of the pronotum; underside of head testaceous, piceous on the tumid base of the gula, the rostrum testaceous, reaching upon the middle coxæ; antennæ moderately stout, testaceous, the two apical joints slender and

more distinctly hairy. Pronotum transverse, moderately convex, minutely pubescent, strongly decurved behind the eyes, with the lateral margins reflexed and set with remote bristles, the humeral angles a little prominent, posterior margin a little curved; sternum piceous, transversely tumid at the collum, and smooth. Legs dusky testaceous, with the anterior femora broad and compressed. Hemelytra dull black, pubescent, gradually widening posteriorly, the membrane almost as long as the corium, opaque, and bluntly rounded at tip, with the middle area large and oval, similar to *C. brasiliensis*; costal margin broadly recurved almost to the tip of corium, the cell adjacent to the costa long and wide, subtriangular.

Length to tip of hemelytra $1\frac{3}{4}$ mm.; width of pronotum $\frac{5}{8}$ mm.

Numerous specimens were collected in various localities in the island. At Balthazar, 250 feet above tide-level, specimens were secured, April 20, in weedy open places in second-growth thickets, and at the same place on August 4, 10, 15, flying at sunset. On the Mount Gay estate they were found August 28-31 and September 6, at an altitude of 200 feet, flying at sunset. On the Grand Étang they were secured at an altitude of 1900 feet on a clearing in the damp forest, where they were beaten from masses of brush and from leaves. On the Chantilly estate they were found, August 5, at an altitude of 500 feet on open hillsides, amidst a second-growth timber, where they were swept from piles of decaying weeds and rubbish.

CRYPTOSTEMMA, H.-Schf.

CRYPTOSTEMMA FASCIATUM, sp. nov.

Dark brown, opaque, oblong-oval, gradually widening posteriorly, minutely pubescent. Head subconical, tinged with rufous in front and below; antennæ long, stout, rufo-testaceous, hairy; rostrum pale testaceous, reaching to the posterior coxæ. Pronotum a little wider than long, indistinctly grooved on the middle line, steeply decurved on the sides anteriorly, where it becomes a little narrower. Legs pale testaceous. Hemelytra apparently coriaceous throughout, dark brown, minutely scabrous and pubescent, crossed behind the scutellum by a wavy, broad, deep yellow band. Beneath dull yellow on the meso- and metasternum, and sometimes on the base of the venter. The entire underside is sometimes pale piceous.

Length to tip of venter 1 mm.; width of pronotum $\frac{1}{2}$ mm.

Four specimens were collected on the Grand Étang, August 9, at an altitude of 1900 feet above the sea, from masses of roots, phyto-parasites, and decaying leaves on trees.

SCHIZOPTERA, Fieber.

SCHIZOPTERA FLAVIPES, Reuter.

Schizoptera flavipes, Reuter, Monogr. Ceratocomb. p. 19, no. 2, fig. 10.

The original type of this species came from Rio, Brazil; but the
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specimens from the West Indies agree in all respects with the description given by Mr. Reuter. This species is now known to me through specimens from Venezuela, Central America, and the Antilles.

Several specimens were taken at Balthazar and on the Grand Étang, in August and the early part of September. They were captured while flying, at sunset, and at various elevations from 500 to 1300 feet above the sea.

PTENIDIOPHYES, Reuter.

PTENIDIOPHYES MIRABILIS, Reuter.

Ptenidiophyes mirabilis, Reuter, Monogr. Ceratocomb. p. 26, no. 1, fig. 15.

Only three specimens were secured: one on the Chantilly estate, early in August, on a hillside, in the piles of decaying weeds; and the others were found on the Grand Étang, August 9, at an elevation of 1900 feet above the sea, where they were beaten from masses of roots and decaying leaves. The type was taken in Brazil.

ANTHOCORIDÆ.

LASIOCHILUS, Reuter.

1. LASIOCHILUS PALLIDULUS, Reuter.

Lasiochilus pallidulus, Reuter, Monogr. Anthoc., Acta Soc. Fenn. xiv. 1884, p. 571.

Many specimens were collected at various points on the island. At Balthazar they were taken, April 7, at an elevation of 250 feet above the sea, while flying over open places at sunset. On August 7 they were taken at the same place from vines and bushes. At the Grand Étang they were found, September 15, at an elevation of 1900 feet, among piles of weeds. Others were taken on the Mount Gay estate.

2. LASIOCHILUS VARICOLOR, sp. nov.

Oblong-oval, much less robust, narrower and more tender than *L. pallidulus*, Reut., fusco-testaceous, pale pubescent, paler beneath, and with the head, pronotum, and base of scutellum rufo-piceous. Head highly polished, shorter than the pronotum, with the eyes black, large, and extending beyond the width of the front of the pronotum; antennæ moderately slender, pubescent, testaceous, sometimes a little dusky, and darker on the ends of the joints, a little longer than the head, prothorax, and scutellum united, the second joint stout, a little longer than the head, slightly thickened at tip; rostrum pale testaceous, reaching behind the anterior coxæ, the basal joint thick, barely reaching to the eye. Pronotum polished, with slender transverse wrinkles; the collum narrow but distinct; the anterior lobe convexly elevated, with an impressed point on the middle; the lateral margin feebly sinuated behind, but strongly contracted in front; the posterior

margin sinuated, with the humeral angles prominent, oblique, and a little rounded; the pro- and mesopleura piceous, with the sternum and coxal pieces paler. Legs pale testaceous. Base of scutellum transversely elevated, the surface behind this depressed, dull testaceous, with the tip almost acuminate. Hemelytra long, closely pale pubescent, dull yellowish, with the apex and inner margin dusky, the costal margin almost straight, and the basal margin of the cuneus bounded by a pale line; membrane dusky, a little paler at base. Venter fulvo-testaceous, distinctly pubescent, ovate, with the ovipositor piceous.

Length to tip of venter $1\frac{3}{4}$ -2 mm.; width of pronotum $\frac{3}{4}$ mm.

Numerous specimens were collected at several points, such as Balthazar, August 8, at an elevation of 250 feet above the sea, in open fields, in piles of decaying weeds; at Chantilly, August 5, at an altitude of 500 feet above tide, on open hillsides, from piles of decaying weeds and rubbish; from Grand Étang, September 12, 15, on piles of weeds; and from the Mount Gay estate likewise on weeds and waste from stable.

3. LASIOCHILUS FRATERNUS, sp. nov.

Form similar to the preceding, but more robust, closely resembling *L. fuscus*, Reuter, smaller, and with a shorter pronotum, &c. Colour fusco-piceous, paler beneath, with pale testaceous legs and rostrum. Head a little shorter than in *L. fuscus*, rufo-piceous before the line of the eyes, polished, a little shorter than the pronotum; a curved impressed line across the vertex, the eyes extending a little wider than the front of pronotum; antennæ stout, fusco-testaceous, the second joint gradually thickening towards the tip, a little longer than the pronotum, the two apical joints paler, conspicuously pubescent; rostrum reaching to the anterior coxæ, the basal joint stout and extending to the middle of the eye. Pronotum trapezoidal, wider than long, polished, transversely wrinkled, a little scabrous on the posterior lobe, punctate on the sides, the lateral margin bluntly rounded off, hardly sinuated, set with erect bristles, the apical border a little reflexed, the posterior margin moderately sinuated, with the humeral angles subacute and a little produced. Sternum, pleural pieces, and disk of venter more or less dark piceous, the deflexed margin of the pronotum placed inferiorly, sharply defined, growing much thicker anteriorly. Scutellum deeply depressed, a little scabrous, pubescent. Hemelytra dull fusco-piceous, minutely pubescent, more or less dull testaceous at base and along the length of the clavus; membrane long, pale fuliginous, paler at base.

Length to tip of venter 2 mm.; width of pronotum $\frac{7}{8}$ mm.

Some specimens have a faint pale dot on the middle at base of cuneus. This species lacks the indentation on the middle of pronotum. Specimens were collected at Balthazar, March 12, at an elevation of 300 feet, on dry hillsides, amongst second-growth woods, under piles of decaying weeds, and at the same place August 7, 8, 10-15; on the Mount Gay estate, August 20--

25, at altitudes of 150–200 feet, flying at sunset; at St. George's, August 27 and September 1, altitude 500 feet, flying at sunset.

4. *LASIOCHILUS NEBULOSUS*, sp. nov.

More robust than either of the preceding species, subovate, dark piceous, with a tinge of rufous, the head, pronotum, and base of scutellum highly polished. Head short, pale rufo-piceous in front of the vertex, the tablet carrying the ocelli opaque and rough, bounded in front by a transverse groove, impressed line at base of tylus deep; antennæ slender, about as long as the head, pronotum, and scutellum united, the basal joint projecting a little in front of the head, piceous, sometimes pale at tip, the second joint shorter than usual, pale yellow with a dusky tip, scarcely longer than the head, the two apical joints tinged with fuscous; rostrum dark piceous at base, pale rufo-testaceous from thence to the tip, reaching to the anterior coxæ. Sternum and venter piceous, the posterior borders of the middle pleura, as also exteriorly, yellowish. Pronotum trapezoidal, wider than long, dark piceous, fringed with a few long ciliæ; dorsal surface very moderately convex, a little scabrous and wrinkled, with a wide collar at tip; the lateral margin very obliquely convergent, emarginated at the apical angle; posterior margin moderately sinuated, the humeral angles a little prominent. Scutellum dark piceous, raised at base, depressed behind this to the tip and minutely scabrous. Legs and coxæ dull testaceous, occasionally paler, with the middle of femora dark piceous; tarsi generally piceous. Hemelytra wide, almost parallel-sided, dull pale yellowish, pubescent, coarsely punctate, the apex of the clavus, an oblong spot near the end of the corium, a streak exterior to this on the costa, and the cuneus dusky or piceous, the posterior edge of the corium marked with polished, piceous, interrupted streaks; the membrane pale, clouded with fuliginous.

Length to end of venter $1\frac{3}{4}$ mm.; width of pronotum $\frac{2}{3}$ mm.

Several specimens were collected at Balthazar, August 7, at an altitude of 250 feet, in second-growth woods, from vines and brush, also on August 17, under piles of cut weeds, in open damp ground. Others were found on the Mount Gay estate, August 20–25, and were beaten from herbage in open places, at an elevation of 200 feet.

5. *LASIOCHILUS PICTUS*, Uhler.

Lasiochilus pictus, Uhler, P. Z. S. 1893, p. 157.

A few specimens were found at Balthazar and on the Mount Gay estate, August 20 to 25, at elevations of 150 to 200 feet above the sea, and they were taken, while flying, at sunset.

6. *LASIOCHILUS BASALIS*, Reuter.

Lasiochilus basalis, Reuter, Monogr. Anthoc., Act. Soc. Fenn. xiv. p. 569.

Several specimens were taken on the Chantilly estate and at Balthazar in March and August, on the hillsides, from among rotting leaves and herbage.

7. *LASIOCHILUS FUSCULUS*, Reuter.

Lasiochilus fuscus, Reuter, Monogr. Anthoc., Act. Soc. Fenn. xiv. p. 576.

A few specimens were obtained at Balthazar, early in August, in an open field, where they were shaken from decaying leaves. On the Grand Étang one specimen was taken, September 1, while flying at sunset.

PIEZOSTETHUS, Fieber.

PIEZOSTETHUS SORDIDUS, Reuter.

Piezostethus sordidus, Reuter, Monogr. Anthoc., Act. Soc. Fenn. xiv. p. 591.

Numerous specimens were procured at several localities. Those from Balthazar were found July 11 and August 17, either flying at sunset, or on open damp ground beneath piles of cut weeds. On the Mount Gay estate and on the Grand Étang they were taken during August, from herbage in open places.

TRIPHLEPS, Fieber.

TRIPHLEPS PERPUNCTATUS, Reuter.

Triphleps perpunctatus, Reuter, Monogr. Anthoc., Act. Soc. Fenn. xiv. p. 654.

A few specimens were taken at Balthazar, August 17, on open damp ground under piles of weeds.

BRACHYSTELES, Muls. et Rey.

BRACHYSTELES PALLIDUS, Reuter.

Brachysteles pallidus, Reuter, Monogr. Anthoc., Act. Soc. Fenn. xiv. p. 672.

A few specimens were secured at four different localities. At Balthazar they were found August 14, flying at sunset: others were taken on the Mount Gay and Chantilly estates, and at St. George's, in August and September, either flying at sunset or beneath piles of weeds.

CARDIASTETHUS, Fieber.

1. *CARDIASTETHUS ASSIMILIS*, Reuter.

Cardiastethus assimilis, Reuter, Monogr. Anthoc., Act. Soc. Fenn. xiv. p. 693.

Several specimens were secured at Balthazar, April 20, from weedy places in second-growth thickets, and on the Mount Gay estate, September 4, flying at sunset, or in second-growth woods.

2. *CARDIASTETHUS ELEGANS*, sp. nov.

Form similar to *C. assimilis*, Reuter, but rather more elongated, pale rufo-piceous, with the legs and antennæ yellowish. Head moderately long, highly polished, fulvous before the line of the antennæ, rufo-piceous behind this point, with a band of punctures

connecting the eyes; antennæ thick on the two basal joints, the two apical ones very slender and hairy, the first joint scarcely extending beyond the tip of tylus, the second becoming thicker next the tip, longer than the head; rostrum extending over the anterior coxæ, rufo-testaceous, darker at base, the basal joint scarcely reaching to the eyes; the eyes black, a little deeper than the head, coarsely granulated; neck behind the eyes short and thick. Pronotum much wider than long, rapidly and obliquely narrowing towards the front; the collum very slender and recurved; callosities transverse, convexly prominent; the posterior lobe short, darker than anteriorly, obsoletely punctate and rugulose; the posterior margin broadly sinuated and having the humeral angles indented, moderately prominent; the lateral margin deflexed, thickened, emarginated at the anterior blunt angle. Sternum and pleural pieces pale rufo-piceous. Legs a little pubescent, darker on the femora than the tibiæ. Scutellum impressed behind the middle and rugose nearer the apex. Hemelytra bright yellow, pubescent, roughly punctate, the inner border and apex of the corium dark brown, this colour extending over the cuneus; membrane more or less tinged with fuliginous, but occasionally clear and iridescent. Venter polished, minutely punctate and pubescent, more or less spread with dark piceous.

Length to tip of venter $1-1\frac{1}{4}$ mm.; width of pronotum $\frac{2}{3}$ mm.

This is a particularly bright-coloured species, rendered more conspicuous by the dark band on the base of pronotum, and by the dark border of the hemelytra. Specimens were captured at Balthazar, April 20, at an altitude of 250 feet, on weedy open places in second-growth thickets; also on the Grand Étang, at an altitude of 1900 feet, where they were beaten from brush and masses of leaves. On the Mount Gay estate they were found August 20-25, and were beaten from herbage in open places, and they were seen flying at sunset in August and September. They were also obtained at St. George's, August 22, in open swampy places, on herbage.

ACANTHIA, Fabr.

ACANTHIA LECTULARIA (Linn.).

Cimex lectularia, Linn. Fauna Suec. p. 909.

Acanthia lectularia, Fabr. Ent. Syst. iv. p. 67, 1.

One specimen was taken. It is very common and a great pest, especially in the poorer class of houses.

TINGITIDÆ.

TELEONEMIA, Costa.

TELEONEMIA SACCHARI (Fabr.).

Acanthia sacchari, Fabr. Ent. Syst. iv. p. 77.

Several specimens were found at Balthazar, April 5, on herbage in the cocoa orchards, also on Lake Antoine estate, April 13,

among second-growth trees, and at the same place August 26, and on the Mount Gay estate, August 26-31, where it was beaten from herbage.

TYPONOTUS, Uhler.

TYPONOTUS PLANARIS, Uhler.

Typonotus planaris, Uhler, P. Z. S. 1893, p. 716.

A few specimens were taken at Balthazar, April 3, from herbage in open weedy places. Also at St. George's and on the Mount Gay estate, in September, from herbage on low grounds.

CORYTHAICA, Stål.

CORYTHAICA CARINATA, sp. nov.

Oblong, narrow, pale fuscous, sinuated on the sides of pronotum, with the costal base of hemelytra less distinctly so, but more broadly and deeply behind the middle. Head short, pale brown above, the bucculæ whitish; the eyes barely projecting beyond the line of the sides of pronotal prolongation; antennæ slender, fulvo-testaceous, dark at base, the apical joint more obscurely brownish, the second joint minute, the third as long as all the rest united, very slender, minutely ciliated, dark brown at base, the apical joint with long, erect setæ; rostrum flavo-testaceous, reaching to the middle coxæ; a diagonal whitish streak beneath the eye. Pronotum tapering anteriorly, with the protuberance detached and lifted above the base of the head, becoming more compressed as it rises, and at the apex curved down beyond the head, its sides and dorsum each with a carinate line having series of large quadrangular cells between them, the lower border reflexed; the posterior lobe of pronotum broad, a little convex, with the lateral margin expanded into a white, thin, reflexed border, which is bounded on the inner side by a raised thread ending anteriorly in a small button, the three longitudinal carinate folds white, arched, the intervening surface granulated; the carinate folds are continued back to tip of the scutellum, the lateral ones arched at base, fading out posteriorly, and the middle one low and slender throughout. Hemelytra mostly opaque, testaceous behind the middle, with the raised lines whitish; the discoidal areole fusiform, fuscous behind, with the bounding veins carinate and the exterior one rising posteriorly; the surface generally granulated; a brown double spot occupies the space costally beyond the discoidal areole; costal area narrow, tapering at base, of almost equal width from thence to tip of membrane, whitish, provided with a single series of subquadrate areoles, and marked near the tip with a dark brown spot contiguous to a brown circle on the closed membrane, middle cells of the membrane large, unevenly reticulated, and with brown veins, the tip almost truncated.

Length to tip of wing-covers $2\frac{1}{4}$ - $2\frac{1}{2}$ mm.; width of pronotum $\frac{3}{4}$ mm.

Collected on the Mount Gay estate, August 21-31, September 11-29, and October 7, on low grounds and hillsides up to 400 feet, beaten from herbage; also at St. George's, September 29, on herbage.

The description is chiefly derived from the dark and mature specimens. Some of these vary in marking, as well as in breadth of hemelytra, especially in the amount of dark brown on the membrane. This colour sometimes occupies the whole base and end of this part of the hemelytra, and leaves a curved whitish band or uneven spot between the two patches of colour.

CORYTHUCA, Stål.

CORYTHUCA DECENS, Stål.

Tingis decens, Stål, Stettin. ent. Zeit. xxiii. p. 324.

A few specimens were found on the Mount Gay estate, October 16, on low herbage.

PHYMATIDÆ.

PHYMATA, Latr.

PHYMATA ANGULATA, sp. nov.

Pale fulvous (no doubt green when alive), narrow, marked with rich dark brown on the pronotum, hemelytra, and sides of abdomen. Head of medium length and width, regularly narrowing towards the tip, the tip triangularly emarginate with the two processes short and subacute, the surface granulated, longitudinally and deeply depressed, with a curved, anteriorly tapering ridge each side conspicuously granulated, which carries the ocelli, the occiput truncated and sharpe-edged; eyes of medium prominence; the antennæ long, with the apical joint (σ) much longer than the three others united, (♀) only about one and a half times as long as the third, usually infuscated on the apical half; cheeks granulated in broken rows, neck remotely granulated. Pronotum pale fulvo-testaceous (when less mature pale testaceous), stained with pale brown across the base, on the lobes of the posterior division, and forming a diagonal spot on the side of the anterior lobes; the anterior division granulated, with the side-lobes subtriangular, a little curved, pale, bordered with granules; the posterior division coarsely punctate, marked off laterally by a deep emargination, followed by a long lamellar wing, which is deeply emarginate on the end, acutely produced at the posterior angle and more triangularly at the anterior angle, which also carries a slender diagonal carina; carinate lines of the disk spreading wider apart posteriorly, all the raised lines granulated; the humero-posterior margin reflexed, white, slightly oblique, broadly sinuated, with the inner angles produced over the clavus. Scutellum pale brown, more closely granulated at base, the middle carina marked with a whitish tip. Corium and clavus more or less dark brown, sprinkled with remote, minute, yellow granules, the veins and costal margin pale yellowish; membrane dark brown with a brassy tinge.

Legs testaceous yellow; the anterior femora more or less rufous, granulated, wide, strongly compressed and smooth on the lower anterior border; middle and posterior femora granulated, marked with a brown band, with rows of spines beneath and a small tooth near the apex; tibiæ of the same pairs more minutely granulated, with a small tooth beneath near the basal end; tarsi sometimes piceous and with black nails. Abdomen pale, widely expanded into long triangular lobes, which are brown spotted with white exteriorly, and pale with dark marks posteriorly, the outer extremity of these lobes acute, and on the underside reddish brown and carinate. Meso- and metapleura marked with a common reddish brown patch.

Length to end of venter $5\frac{1}{2}$ –6 mm.; width across humeral wings $2\frac{3}{4}$ –3 mm.; width across abdominal lobes 3– $3\frac{1}{2}$ mm.

The specimens were secured on the La Force estate on May 5 and August 7, at an altitude of 250 feet, and were swept from herbage in open swampy and weedy places; others were taken on the Mount Gay estate, September 28, October 3 and 12, in open places among herbage.

NABIDÆ.

CORISCUS, Schrank.

1. CORISCUS CRASSIPES (Reuter).

Nabis crassipes, Reuter, Öfv. Vet.-Akad. Förh. 1872, no. 6, p. 83.

One specimen was found on the Lake Antoine estate, March 24, where it was swept from herbage.

2. CORISCUS SERICANS (Reuter).

Nabis sericans, Reuter, Öfv. Vet.-Ak. Förh. 1872, no. 6, p. 83.

Only one specimen was obtained. It was taken at Beaulieu, March 24, upon herbage, on an open place.

3. CORISCUS CAPSIFORMIS, Germar.

Nabida capsiformis, Germar, Silb. Rev. v. p. 132.

A fine series of this insect was secured at St. George's, August 22, upon open swampy spots on herbage. Other specimens were found on the Mount Gay estate and Grand Étang, in September, upon herbage.

4. CORISCUS SIGNATUS, sp. nov.

Form very nearly that of *C. capsiformis*, but a little narrower, luteo-testaceous, marked with fuscous or clearer brown. Head as in *C. capsiformis*, with the middle of the gula fuscous; the first and second joints of antennæ long, brown at base and tip, and marked with obscure annulations; the rostrum pale testaceous, with a dark ring on the apex of the basal joint, which is followed by a pale ring on the next joint; middle line and margin of front more or less obscure; occiput a little swollen, polished, sometimes

pale piceous. Pronotum marked with a narrow fuscous line on the middle, which becomes double on the anterior lobe; each side of this several short streaks of the same colour are distributed over the surface, and on the humeri and nearer the middle are two short, faint stripes of fuscous; posterior margin decurved, with the extreme edge whitish. Legs pale testaceous sprinkled with fuscous, with a black band at tip of the middle and posterior femora, and a smaller black spot on the apex of the tibiæ; the tarsi and especially the nails fuscous. The scutellum and inner edge of the clavus receives the continuation of the black stripe from the middle of the pronotum. Clavus and corium striped with obscure fuscous lines, some of which border the inner edges of the strong veins; the cuneus is also marked with a fuscous abbreviated stripe; membrane marked with fuscous lines, most of which are confined to the veins. Meso- and metasternum piceous black, the venter pale on the middle, darker on the side, and with the connexivum marked with black, irregular spots. Genital segment of male a little clavate, subtruncate at tip, and bent back.

Length to tip of venter 6-6½ mm.; width of pronotum 1-1¼ mm.

Numerous specimens were obtained at Balthazar, April 7 and August 15, at an altitude of 250 feet, on open weedy places near a stream. It was also taken at St. George's and on the Vendôme estate. A few specimens were beaten from herbage at night.

VELIDIA, gen. nov.

Aspect of a robust *Metacanthus*, but a genuine Nabid, with certain elements of structure, such as a blunt vertical head and deep pronotum, quite out of keeping with the ordinary members of this group. Head short, with a polished swollen base, which is separated from the space in front of the eyes by a transverse groove; the eyes oval, vertical, projecting but little beyond the occipital swelling; front short, but slightly convex. Rostrum conical at base, beyond this slender and reaching upon the posterior coxæ; the tylus vertical, narrow, tapering, the cheeks also narrow. Antennæ slender, the basal joint a little longer than the head; the second joint more slender, nearly twice as long as the basal one; the third equally slender, a little longer than the second; the fourth shorter than the second. Pronotum short, blunt, subtrapezoidal, having a recurved collum which caps the base of the head; the anterior lobe almost entirely occupied by the smooth, swollen, transverse callosities, the lateral margins carinated along the upward curve of the callosities; the posterior lobe high, sloping forwards, almost flat, a little wider than long, with the posterior border deflexed and the edge sinuated and reflexed; the pleural flaps wide, almost abruptly deflexed, forming a cap, the edges widely reflexed. Scutellum sublunate, very short, almost covered by the pronotum, with the apex acuminate. Legs of median length, the posterior femora a little clavate at tip; the anterior pair thickest, tapering at both ends

armed beneath with two series of fine teeth; the middle ones scarcely longer than the anterior, also thicker in the middle; the tibiæ all filiform, very slender. Hemelytra a little narrowed in the middle, with the membrane long, bluntly rounded at tip, and a little notched on the outer margin at base; the discoidal areole very large, with the apical veins very slender, radiating like the rays of a fan.

VELIDIA BERYTOIDES, sp. nov.

Long, subcylindrical, griseo-fuscous, widest at the base of the pronotum. Head highly polished, black at base and between the eyes, the face, cheeks, and rostrum yellow; the antennæ dusky testaceous, annulated with black at the ends of the joints, and with a white band at the base of third and fourth joints, the basal joint with a broader black band a little way behind the tip. Pronotum greyish testaceous; the posterior lobe strongly punctate, the callosities black and polished, with a groove in the middle between them; the collum in front of these polished, yellow; the intrahumeral and the posterior border black, with the edge yellow; the pleural flaps punctate, pale yellow; humeri with a small whitish callosity in the angle. Scutellum mostly greyish yellow, with the apical point white. Legs yellow, all the femora with a black band before the tip, and the middle and posterior pairs, especially, marked with about three narrow black bands; the tips of tibiæ and of tarsi also black. Venter smooth, dull fulvo-testaceous, with a large black spot each side of base and the last two segments mostly black.

Length to tip of venter $2\frac{1}{2}$ mm.; width of pronotum $\frac{2}{3}$ mm.

Only one specimen was obtained. It was found at Balthazar, on April 27, at an elevation of 250 feet above tide-level, near the shady bank of a stream; beaten from a mass of bush and decaying leaves.

ALLÆORHYNCHUS, Fieber.

ALLÆORHYNCHUS ARMATUS, sp. nov.

Form similar to that of *A. flavipes*, Fieb., but rather narrower, invested with erect pubescence. Colour above mostly piceous black; abdomen, underside of body, and the legs honey-yellow, more or less tinged with piceous. Head short, black, highly polished, rufopiceous from the eyes forward, the width across the eyes but little more than the front of the pronotum; antennæ slender, the basal joint hardly longer than the head, dull yellow, darker on the base and tip, hairy; the second fully twice as long, hairy, about as stout as the basal one, dusky; the apical joints long, much more slender, pubescent, fuscous; rostrum honey-yellow, reaching upon the middle coxæ, the base stout, following which the next joint is thick and extends behind the middle of the prosternum, the following one is compressed and shorter. Pronotum campanuliform, highly polished, deep black, with a row of coarse, remote punctures along

the middle line; the anterior lobe about twice as long as the posterior, strongly convex, indented each side anteriorly, with a distinct contracted double collum in front, the incision behind it deep and distinct; the posterior lobe a little more than half as long as the anterior, but much wider, arched, with the lateral margins almost abruptly oblique, indented next the humeri. Scutellum dull black, depressed, with the margins and tip a little raised. Legs stout, bristly, the femora thick, the anterior pair armed behind the middle with a sharp piceous tooth, before which rows of very fine teeth run out to the tip; tip of tarsi piceous. Sternum and pleural pieces blackish piceous, remotely pubescent. Hemelytra pubescent, bright yellow from base to near the apex of corium; the clavus, inner margin and tip of the corium, and the cuneus piceous black; membrane tinged with smoke-brown. Venter closely yellowish pubescent, margined on the submargin with a piceous curved line.

Length to tip of venter $3\frac{1}{2}$ mm.; width of pronotum $1\frac{1}{4}$ mm.

Only one specimen of this interesting species was obtained. It was captured at Balthazar, on August 8, at an altitude of 250 feet, in an open field, where it was shaken from piles of decaying weeds.

APHELONOTUS, gen. nov.

Oblong-oval, acute at both ends, pubescent. Closely related to *Pachynumus*, Klug, but having minute ocelli deep-seated and placed inside very near to the eyes. Head hardly longer than the pronotum, subcylindrical before the eyes, the vertex between the eyes forming a stout convex lobe, inserted in the thorax almost to the base of the eyes. Rostrum wide and depressed at base, reaching but a little way upon the sternum, the second and third joints much less thick. Antennæ about as long as the hemelytra to tip of membrane; the basal joint fusiform, shorter than the head; the second cylindrical, about twice as long as the first, a little more slender; the third shorter, about equally thick, attenuated at base; the following joints setaceous, set with erect long hairs. Prothorax transverse, subluniformal, with a broad, contracted, collar-like apex, which is followed on the middle by a clearly bounded wedge-shaped callosity, behind this an impressed line continues to the transverse posterior suture; middle lobe moderately convex, with the sides a little decurved and bordered with a blunt carina, the sides before this contracted and indented; the posterior division is quite narrow, flat, less coriaceous than the other parts, and on the sides separated from the preceding lobe by a deep incision behind which the margin is callous; posterior margin broadly sinuated, with the humeral angles a little produced backward. Scutellum triangular, longer than wide, a little reflexed at tip. Anterior femora sublenticular, compressed, armed beneath with rows of short teeth; the tibia of this pair slender, curved, carrying a little spongiole beneath the tip, the other legs simple, bristly. Prosternum simple; mesosternum with a short carina, followed

by a knobby prominence. Corium provided with an embolium, and having a triangular open space behind the apex of the scutellum; the clavus sublinear. Abdomen depressed, closely pubescent.

APHELONOTUS SIMPLUS, sp. nov.

Obscure pale fusco-fulvous, with the head piceous and the eyes black. Antennæ sometimes infuscated beyond the second joint. Pronotum bilobate in the middle, not evidently punctate, polished, paler on the posterior border. Scutellum dull fulvo-piceous, absolutely punctate at base. Legs paler than the upper surface, with the spines dark piceous. Corium coarsely punctate in rows, the colour dull piceous on the disk, with the border and embolium paler. Abdomen pale fulvous, closely sericeous pubescent; the genital segment of the male tumid.

Length to tip of venter $3\frac{1}{2}$ mm.; width of pronotum 1 mm.

Seven specimens were taken on the Mount Gay estate on August 28, at an elevation of 200 feet above the sea. They were found under leaves in a thicket upon a dry hillside.

REDUVIIDÆ.

PRIONIDUS, Uhler.

PRIONIDUS CARINATUS (Forst.).

Cimex carinatus, Forst. Nov. Spec. Ins. p. 72.

This is the most beautiful variety of this remarkable species. Specimens were found on the Lake Antoine estate as early as March 24, on herbage, in littoral thickets; and late in August at St. George's and on the Mount Gay estate, at both of which places they were beaten from herbage.

The form *P. cristatus*, Linn., which is rapidly being connected with the above by the discovery of intermediate varieties, is found in the United States late in summer and in the autumn until the chilling frosts become settled.

SIRTHENEA, Spinola.

SIRTHENEA STRIA (Fabr.).

Reduvius stria, Fabr. Ent. Syst. iv. p. 201.

Three specimens were taken at Balthazar, in April, where they were found in cocoa orchards, or came to the light at night.

RASAHUS, Am. et S.

1. RASAHUS HAMATUS (Fabr.).

Reduvius hamatus, Fabr. Spec. Ins. ii. p. 381.

Five specimens were taken at Balthazar, in April, where they came to the light at night.

2. *RASAIUS SULCICOLLIS*, Serv.

Peirates sulcicollis, Serv. Ann. Sci. Nat. xxiii. p. 219 (1831).

One specimen was secured at Balthazar, April 25, where it came to light at night.

STENOPODA, Lap.

1. *STENOPODA CULICIFORMIS* (Fabr.).

Cimex culiciformis, Fabr. Syst. Ent. p. 728.

Three specimens were found on the Mount Gay estate and at Balthazar, April 5, in cocoa orchards, upon herbage.

2. *STENOPODA CANA*, Stål.

Stenopoda cana, Stål, Öfv. Vet.-Akad. Förh. 1859, p. 384.

One adult and a nymph were taken at Balthazar, March 19, in an open place upon herbage.

NARVESUS, Stål.

NARVESUS CAROLINENSIS, Stål.

Narvesus carolinensis, Stål, Öfv. Vet.-Akad. Förh. 1859, p. 385.

One specimen was found at Balthazar, May 16; it came to the light at night.

SAICA, Am. et S.

1. *SAICA RECURVATA* (Fabr.).

Zelus recurvatus, Fabr. Syst. Rhyng. p. 286.

Two specimens were taken at Balthazar, April 5-7, in open places upon herbage.

2. *SAICA ANNULIPES*, sp. nov.

Small in this genus and with the pronotum somewhat longer than usual, pale fulvo-testaceous, pubescent, rufous on most of the tergum, the legs and antennæ more especially testaceous. Head highly polished, short, rufo-testaceous, darker on the face and front; eyes large, black, prominent, but not rising as high as the posterior lobe; the posterior lobe deeply cleft, the two members almost orbicular; the neck short, strongly contracted; rostrum stout, reaching to the anterior coxæ; antennæ a little infuscated, fully as long as the head and prothorax united. Prothorax long; the anterior lobe high, very convex, sulcated, excavated in front, with a collum in front of the cavity, the upper surface tumid each side, the lateral margin composed of an arched carinate edge, and the anterior angles callous; the posterior lobe subtrapezoidal, deeply separated by the incision in front, with the middle line broadly, not deeply, grooved, the lateral margins thick, followed by a long callosity on the humerus; the posterior border steeply deflexed, slightly waved, with the posthumeral edge slenderly reflexed. Scutellum tumid and uneven at base, with the apical

member dark piceous, wrinkled and armed with a small process at tip. The anterior femora closely spined beneath, the tibiæ with a few remote long teeth; middle and posterior femora unarmed, having a dark band next the tip, the corresponding tibiæ slender and simple. Hemelytra smoke-brown throughout, with the veins darker. Tergum rufous, infuscated on the middle; the venter highly polished, obscure luteous.

Length to tip of venter 5 mm.; width of pronotum 1 mm.

Only a single specimen (♀) was obtained. It was found at Balthazar, at an elevation of 250 feet above the sea, on March 18, in second growth, and was beaten from vines.

ONCEROTRACHELUS, Stål.

ONCEROTRACHELUS CONFORMIS, sp. nov.

Fusco-luteous, pubescent. Form narrower than *O. acuminatus*, Say. Head behind the eyes suborbicular, polished, minutely denticulated beneath; eyes black, large, round, coarsely granulated, carried a little above the surface of the front: rostrum reaching to the posterior end of the anterior coxæ, bristly rather than denticulated beneath the joints, the basal joint as long as the head; antennæ pale fuscous, set with erect bristly hairs, the basal joint about as long as the head, pronotum, and scutellum united. Pronotum clothed anteriorly with erect hairs, darker on the anterior lobe; the posterior lobe almost bald above, highly polished, with the latero-posterior margin callous, erect, pale testaceous, and ending above in a tooth; the posterior margin pale, a little sinuated each side and marked with a short suture behind each sinus. Scutellum with a pale, scarcely elevated, spine at the apex. Legs pale fusco-testaceous, distinctly pubescent. Hemelytra a little narrower than the posterior part of the abdomen; the clavus and costal margin pale yellowish, the rest of the surface dusky. Underside, including the venter, with an uneven stripe each side extending from the propleura to the tip of the venter.

Length to tip of venter 4 mm.; width of pronotum scarcely 1 mm.

Three specimens were captured at Balthazar, April 1 and August 6-10, at an elevation of 250 feet above the sea. They came to the light at night.

This species is very closely related to *O. acuminatus*, Say; it differs, however, in being narrower and smaller, in having erect sharp-pointed humeri, and in the absence of the stouter teeth on the surface of the basal joint of the rostrum.

EMESIDÆ.

STENOLEMUS, Signoret.

STENOLEMUS, sp. ?

A larva of this genus was taken at Balthazar.

EMESA, Fabr.

EMESA ANGULATA, Uhler.

Emesa angulata, Uhler, P. Z. S. 1893, p. 717.

Three specimens of this insect were found at Balthazar, April 7-20, in open weedy places upon herbage.

LUTEVA, Dohrn.

LUTEVA GUNDLACHII, Dohrn.

Luteva gundlachii, Dohrn, Linnæa Ent. xiv. p. 244, pl. 1. fig. 19.

Seven specimens, more or less mutilated, are in the collection. They were taken at Balthazar, August 7, on vines and brush.

EMESOPSIS, Uhler.

EMESOPSIS NUBILUS, Uhler.

Emesopsis nubilus, Uhler, P. Z. S. 1893, p. 718.

Several specimens of this delicate insect were taken at Balthazar in August. They came to the light at night.

SALDIDÆ.

SALDA, auctores.

SALDA HUMILIS (Say).

Acanthia humilis, Say, Heteropt. New Harmony, p. 35.

Specimens of this species were found on the Telescope estate, August 15, on the margins of pools of water. Two different sizes occur at this locality: the one normal, such as is met with in the eastern United States and Cuba, the other longer and with a somewhat narrower abdomen.

HYDROBATIDÆ.

LIMNOMETRA.

LIMNOMETRA MARGINATA (Guérin).

Gerris marginatus, Guérin, Sagra's Hist. Cuba, Ins. p. 415.

Numerous specimens of this insect were captured on the Telescope estate, August 15, and later, on the margins of pools of water.

BRACHYMETRA.

BRACHYMETRA ALBINERVIS (Am. et S.).

Halobates albinervis, Amyot et Serv. Hémipt. p. 412.

Many specimens, mostly of the winged form, were taken on the Mount Gay estate, both in April and August. Others were

found on the Mirabeau estate, at Woburn and at St. George's, on the surface of streams of water, as also on springs of water.

In the unwinged form the scutellum is not distinctly differentiated, but in the winged one it is covered by the valvular end of the pronotum.

This species has an extensive distribution from south to north. It occurs at Rio and at other places near the coast of Brazil, but the most northern limit at present known for it is the island of St. Vincent. No specimens have yet been obtained in Cuba, and I did not discover it in the island of San Domingo, where my work was particularly directed to obtaining the insects from the springs and streams of fresh water, both of the highlands and the coast. The close collecting of Prof. Poey and Dr. Gundlach, throughout a period of more than forty years, should have secured this insect if it existed in Cuba, but no specimens have been reported by either of those gentlemen.

It varies somewhat in colour and degree of marking upon the head, pronotum, and sides. The medial carina and transverse impression are not absent, as stated by Dr. Mayr (Novara-Reise p. 178); but the slender carina is not always very distinct, and it is rendered much less conspicuous through simulating the colour of the surface.

TREPOBATES, Uhler.

TREPOBATES PICTUS (H.-Schf.).

Halobates pictus, H.-Schf. Wanz. Ins. viii. p. 111, t. cclxxxvi. figs. 882, 883.

Stephania picta, B.-White, Challenger Rep., Zool. vii. pt. 19, p. 79.

Several varieties of this species, precisely like those which are common in Maryland and farther south, were secured at St. George's, August 28-31, on the surface of brackish water. A single specimen was found at Woburn, August 30, on a sluggish stream in the open flat country near sea-level. On the Telescope estate a pair were taken while in sexual connection, August 12, on a brackish pool next the sea-shore. The male of this pair is winged and the female unwinged. In the eastern United States this species frequents the bayed out parts of streams and the mill-ponds, and is distributed inland to near the head-waters of creeks which rise in the western portion of the Piedmont country, as in Frederick county, Maryland, and Spottsylvania, Virginia.

As the name of this genus is preoccupied, and the genus has not yet been fully described, for lack of winged specimens, it becomes necessary to give the following characters, which are in augmentation of those given by Dr. Buchanan-White:—Anterior tarsi normally three-jointed (exceptionally two-jointed); the hemelytra curved and tapering at base, gradually becoming wider towards the tip, at which point it is a little triangular and rounded; the corium subtriangular and about one half as long as the membrane, with three stout longitudinal veins, of which the costal is more

bristly towards the base; the membrane has a pale longitudinal suture throughout, with a thick vein on the middle which does not quite reach the end of the loop that is formed by the two veins which run parallel to the margins and which converge on the tip; no transverse veins as in *Brachymetra*. In some specimens the acute tip of the scutellum projects from between the metanotal plates, in others it is atrophied. In two specimens the basal joint of tarsi was present on one side, and not on the other.

HYMENOBATES, gen. nov.

Narrower and somewhat more elongate in form than the male of *Halobates picta*, H.-Schf. Head with the front of the same form as in *Metrobates*, Uhler. Antennæ tapering in the direction of the tip; the basal joint long, fusiform, tapering narrowly on the apical third, armed beneath near base with a group of long spines and at the tip with a stronger spine; the second joint exceedingly short; the third less than one half as long as the first, armed with a stout triangular tooth which is followed by a bundle of bristles; the fourth shorter, curved and pointed like a claw. Rostrum short and stout, extending between the anterior coxæ, the first and second joints exceedingly short, the third very long and acutely tapering. Pronotum longer than wide, moderately convex, ending ovately above the scutellum; the humeral angles almost obsolete, and the narrow reflexed margin sloping anteriorly away from them. The anterior legs short, with the tibiæ thick and expanded; the middle pair very long and slender; the posterior pair shorter, with long thick coxæ; the femora a little less thick than the coxæ, but curved, and like them set with bristles, also with two long spines near the tip and a knob-like callosity at base; the tibiæ a little longer, tapering at both ends, fringed with two bundles of stiff bristles between the middle and tip; tarsi about half as long as the tibiæ, very slender, tapering almost to a bristle towards the tip. Hemelytra, including the membrane, twice as long as the pronotum; the corium narrow, almost linear, with the costa thick and the costal cell not conspicuous, but the discoidal cell very long and narrow, triangular at tip and sending off from the inner angle a single vein obliquely across the membranous part of this organ; a transverse suture with a vein forms the boundary for the base of membrane; the clavus is minute and almost concealed, the remainder of the corium is thin like a membrane; the membrane is much longer than the corium, elongate-oval, with two long veins which unite at tip to form a loop. The abdomen is short and subconical.

HYMENOBATES IMITATOR, sp. nov.

Yellow beneath, black above, with the base of antennæ, a band near their tip, and a transverse spot in front of pronotum, as also the coxæ, yellow. Membranous part of the corium bluish, the membrane smoke-brown; the sutures, a curved line on the side of

mesopleura, border of metapleura, bands on ventral segments, antennæ, and legs black.

Length to tip of venter $2\frac{3}{4}$ mm., to tip of membrane $3\frac{3}{4}$ mm.; width of pronotum 1 mm.

South of Grenville, windward side of island, August 4, on stagnant water. Only one specimen of the winged form is present in the collection. The others are either young specimens, or undeveloped females without indications of wings. The measurements are taken only from the winged male specimen used for description. The females have the simple antennæ and hind legs, as in *Rheumatobates*, Bergr., and *Metrobates*, Uhler. In the female, however, the antennæ are very much shorter than in either of the genera just mentioned.

VELIIDÆ.

VELIA, Latr.

VELIA STAGNALIS, Burm.

Velia stagnalis, Burm. Handb. ii. p. 212.

Several specimens were collected on the Mount Gay estate, late in August, on the surface of shady pools of small streams, on the grass growing in the water, and also gliding over the surface. Other specimens were secured about the same time and early in September at Woburn and Mount Maitland. The larval form was found at Woburn, August 30, on a sluggish stream near the sea-level. These specimens are more clearly marked with the silvery white streak at base of corium, and with similarly coloured dots on the connexivum and spots on the membrane, than is usual in specimens from the southern United States, Cuba, and Mexico. The large silvery area near the end of the tergum is evanescent, and not present in weather-beaten individuals.

RHAGOVELIA, Mayr.

RHAGOVELIA ANGUSTIPES, sp. nov.

In form similar to *R. obesa*, Uhler; black, opaque, closely pubescent. Head including the eyes a little wider than the front of the pronotum, the middle line elevated into a callosity which runs back, tapering, to near the occiput; eyes prominent, coarsely granulated; antennæ black, set with remote, erect bristles, with the basal joint curved, yellow at base, and the second and third joints shorter, subequal in length; rostrum piceous black, extending to behind the anterior coxæ. Pronotum moderately convex, yellow back of the head, trapezoidal in front of the humeral angles, triangular and a little shorter behind them, with the posterior margin flat, a little reflexed on the edge, and with the tip a little bent and almost acute; the humeral angles a little ridged, the lateral margins feebly acute, a little sinuated. Underside plumbeous. Scutellum concealed. Legs hairy; the coxæ, trochanters, and base of anterior femora bright yellow, the posterior femora

very slightly thickened, armed beneath with a row of very fine teeth; the tibiæ especially clothed with stiff hairs. Hemelytra long and rather narrow, the costal vein stout, clothed at base with stiff bristles. Venter smooth, plumbeous, with the genital pieces and the middle of the border of the apical segment orange.

Length to tip of venter 3–3½ mm.; width of pronotum 1¼ mm.

Numerous specimens were obtained at Balthazar, August 7, at an altitude of 250 feet on running water; also on the Mount Gay estate, April 5, at the same altitude; and at Mount Maitland, August 20–25, at an altitude of 150 feet, on the surface of a stream of spring-water.

2. RHAGOVELIA ELEGANS, sp. nov.

Larger and more robust than *R. angustipes*. Fuscous or dark rusty brown, hairy. The head short, across the eyes hardly wider than the front of pronotum, the callous ridge between the eyes not tapering posteriorly, almost touching the pronotum (♀); the eyes wider apart, with the space between them broad, coarsely granulated, and destitute of a callous ridge (♂); the cheeks and most of the face yellow; antennæ of medium thickness, remotely set with long bristles, with the basal joint yellow at base, about one third longer than the second, the second a little less thick, much longer than the third, the third and fourth a little more slender, both contracted at base, the third with a slender tooth at tip, the fourth much shorter and acute on the apex; the rostrum yellow, piceous at tip, reaching behind the anterior coxæ. Pronotum stout, convex, coarsely transversely wrinkled, bordered all round with yellow, this colour covering the anterior lobe as a broad band and extending down over the pleura; the propleura constituting a thick and broad callous smooth segment to carry the front legs, the surface behind this punctate in a curved line; middle line obsoletely carinated, the posterior margin almost equilaterally triangular, with the edge recurved and the space before the tip usually depressed; the humeral angle bluntly reflexed, obtuse, cut apart from the side below by an incised line; pleura and sternum yellow, with piceous streaks running down upon the coxæ. Legs stout, pubescent, dark brown, with the coxal plates mostly yellow; the posterior femora thick, clavate, tinged with bronze, polished, paler beneath, and armed there with about seven, chiefly long, teeth, of which the two inner ones are longer and thicker. Hemelytra dark fuscous brown, long, almost parallel-sided, and with thick prominent veins. Venter yellow, sometimes dusky, polished, with a stripe of brown each side running parallel with the outer margin; the border of connexivum brighter yellow, as also the genital segments.

Length to tip of venter 4½–5 mm.; width of pronotum 1¾–2 mm.

The prothorax is much shorter and more blunt on the posterior margin in the unwinged individuals.

Specimens of this form were met with at several localities. At Balthazar they were taken in April, on water; also on the

Mount Gay estate during the same month on spring-water; likewise on the Grand Étang, at an altitude of 1900 feet, on water.

It differs from *R. collaris*, Burm., in the coloured margins of pronotum, the more numerous denticulate femora, colour of venter, and size.

3. RHAGOVELLA PLUMBEA, sp. nov.

Only the unwinged form is at present known. It is short and thick, subconical posteriorly, bluish plumbeous, opaque, minutely hairy, with the sides of the abdomen broadly reflexed. The head wide, convex, with a slender black line on the front, the orbits of the eyes bordered with yellow; the rostrum testaceous, reaching considerably behind the anterior coxæ; antennæ moderately long, brownish, finely pubescent, the basal joint yellow at base, much longer than the third, which is also much longer than the second, the fourth about as long as the second, thick, distended in the middle. Pronotum very moderately convex behind the middle, sloping posteriorly; the anterior lobe short, collar-like, with oblique sides, a yellow spot on the middle, and feebly carinate lateral margins, it is separated from the posterior lobe by a deeply incised line; the posterior lobe is somewhat abruptly wider, with strongly reflexed lateral margins and subacute humeral angles, with the posterior margin abruptly deflexed; a broad segment behind this has in the depressed outer corner a tumid callosity which occupies the position of the wing-pad. The propleural flap is mostly yellow, as is the cap of the intermediate and posterior coxæ and also the coxæ, trochanters, base of anterior femora, and the immediate base of posterior femora; other parts of legs fuscous, sericeous pubescent, and the posterior femora unarmed. The posterior border of last ventral segment and sometimes the genital segment yellow.

Length to end of abdomen, ♂ $2\frac{1}{2}$, ♀ $3\frac{1}{4}$ mm.; width of pronotum, ♂ 1, ♀ $1\frac{1}{4}$ mm.

This is a common species on the surface of salt-water around the inlets of the Florida Keys. Several specimens were secured in the Bay of St. George's, on the leeward side of Grenada, September 6, on the surface of the sea. Only specimens taken *in copulâ* were kept.

Others were captured at the southern end of the island of St. Vincent, May 24, swimming on the sea, in a sheltered and still place near the shore. Gregarious in habits, 50-60 together. They were also taken *in copulâ* at this time.

The male is very much smaller than the female, and the latter is usually marked by a carinate line on the middle of the contact of the two lobes of the pronotum.

MESOVELIA, Muls.

1. MESOVELIA BISIGNATA, Uhler.

Mesovelia bisignata, Uhler, Standard Nat. Hist. ii. p. 273, fig. 324.

A fine series of this insect was secured at Woburn, Granville,

Beaulieu, Grand Étang, and on the Mount Gay estate. It was found in the young stages on the Grand Étang, March 2, along the margin of running water, and in August it was found fully developed on the surface of stagnant ponds and on a sluggish stream near the sea. In the eastern United States along the seaboard its habits are essentially the same as in Grenada. Near Baltimore it lives on the ponds and around the overflowed freshwater marshes among the cat-tails and rushes, where it creeps stealthily about in search of small insects which fall into the water.

2. MESOVELIA AMÆNA, sp. nov.

Dark brown, almost black in some specimens; beneath pale brown with a plumbeous tinge, except the venter, which is yellow with transverse cloudings of darker colour on the segments, sides, and tip. Head broader in the female than in the male, obscure yellow, the vertex with a brown stripe each side and the middle line grooved, the tylus and borders of cheeks piceous; antennæ long and slender, rusty brown, paler on the basal portion of the first joint, the second joint about two thirds the length of the first and not quite as thick, the following joints long and more slender; rostrum testaceous, piceous at base and tip, reaching between the middle coxæ. Pronotum opaque, velvety brown, marked with a whitish transverse spot on the middle of the collum; the posterior margin widely sinuated; the lateral margin with the carinate edge but slightly elevated, marked with two or three small pale spots; the humeral margins more distinctly reflexed. Scutellum almost black, a little rough, opaque. Coxæ and legs ivory whitish, more or less infuscated on the tibiæ and tarsi. Pleural pieces more or less tinged with plumbeous on a brown ground. Hemelytra velvety brown, opaque, the base and a long streak each side white; behind the white band the surface is pale brown, and behind this, including the posterior part of the membrane, it is pale smoke-brown; the base of the membrane and a stripe at its tip obscure whitish. Venter glossy, often with a dark stripe each side near the lateral border.

Length to tip of venter 2 mm.; width of pronotum $\frac{3}{4}$ mm.

From Mount Maitland and Mount Gay estate, August 26-31, on the surface of a stream, and September 6, at 50 feet above the sea, on a pool of water among grass and weeds.

MICROVELIA, Westw.

1. MICROVELIA CAPITATA, Guérin.

Microvelia capitata, Guérin, Sagra's Hist. Cuba, Ins. p. 417.

A few specimens were collected at Balthazar in June and August, on ponds of stagnant water; and others were found on the Telescope and Mount Gay estates, in August and September, on the surface of freshwater pools.

2. *MICROVELLIA ROBUSTA*, sp. nov.

Shorter and comparatively more robust than *M. modesta*. Colours about the same, except that there is an absence of pale colour from the venter and no yellow border on the connexivum. The head is immersed nearly up to the eyes in the pronotum; the eyes are bordered internally with prostrate white pubescence; the front of the pronotum is shorter and less contracted, densely covered with white pubescence, which is laid upon a faintly yellow band; the pleural pieces are not broadly bordered with testaceous, and the posterior femora are only a little longer than the middle ones; the last joint of antennæ more than one third longer than the third joint. The hemelytra are smoke-brown, often pale, with two white diagonal streaks at base, pale spaces in the areoles, and a white pyriform spot in the apical areole; the costal area is almost linear, deflexed, pale, and marked with a row of remote brown dots.

Length to tip of venter 2 mm.; width of pronotum $\frac{7}{8}$ mm.

A few specimens were collected at Woburn and Beaulieu, August 25, at an altitude of 700 feet above the sea, on the surface of a stagnant pond; another specimen was taken on the Mount Gay estate, in September.

3. *MICROVELLIA MARGINATA*, Uhler.

Microvelia marginata, Uhler, P. Z. S. 1893, p. 719.

Several specimens were secured on the Grand Étang, August 9, at an elevation of 1900 feet above the sea, on pools of water in a swampy forest.

This beautiful little species has a very extended distribution, as it is now known to occur in Trinidad, St. Vincent, Central America, Mexico, Cuba, and in the United States, from Florida to northern New Jersey. In Maryland it lives on the quiet pools beside streams of water near the cities of Baltimore and Washington.

4. *MICROVELLIA LONGIPES*, sp. nov.

Long and narrow, dark brown or fuscous, paler beneath, covered with plumbeous. Head long, dark brown, sericeous pubescent, with the orbits of the eyes and the slender line on the vertex, the throat and cheeks testaceous; middle of vertex oblong-ovate, prominently elevated; rostrum pale testaceous, piceous towards the tip, reaching to the middle coxæ; antennæ slender, pale rufopiceous, a little darker at ends of the joints, the base of first and second joints testaceous, second joint shortest, third longest, about one and a half times as long as the second, the fourth a little shorter than the third. Pronotum a little longer than wide, steeply sloping anteriorly, velvety, powdered with pale grey, with a slender whitish-yellow collum interrupted in the middle by the slender black carina which runs back towards the base; the humeri triangular, a little recurved at the margin; the posterior division triangular, rounded at tip, feebly recurved, bordered with yellow;

the pleural flaps strongly curved, margined with yellow. Scutellum concealed beneath the end of pronotum. Legs slender, tinged with fuscous, paler at base; the anterior femora dull testaceous, about half as long as the middle pair, the posterior pair nearly twice as long as the middle one, and likewise the same in the tibiae. Hemelytra whitish translucent, with the veins black and thick; when the wings are closed the submarginal areole forms a long silvery streak which is followed behind by an oval areole of like colour, and this in turn is followed at tip by a similar spot which does not fill the areole; wings milk-white. Tergum dark brown, venter at tip and coxæ pale testaceous, the connexivum bordered with pale yellow.

Length to tip of venter 3-3 $\frac{1}{4}$ mm.; width of pronotum 1 mm.

Several specimens of this remarkable insect were taken on the Mount Gay estate, September 21-26, on water in a large iron kettle.

This species stands by itself as regards the remarkable elongation of its posterior legs. It thus helps to bridge over the gap between this group and the *Hydrobatidæ*, although but few of the other elements of its structure have undergone important modification.

5. MICROVELIA MODESTA, sp. nov.

Similar to *M. longipes*, but much more robust, dark brown or fuscous, velvety opaque above, paler fuscous beneath and spread with plumbeous bloom. Head long, tapering at tip, with a convex ridge on the middle line; the throat, cheeks, and border of the orbits of the eyes testaceous; antennæ of medium thickness, dull testaceous, more infuscated on the ends of the joints, the fourth joint longest, the second shortest, and the basal one a little shorter than the third; rostrum testaceous, piceous at base, on the middle line, and at tip. Pronotum steep anteriorly; the collum marked each side with yellow, spread with whitish bloom, and having the slender carina on the middle black; this carina runs back to the apex of pronotum; humeral border triangular, a little elevated at tip; apex of the pronotum triangular, feebly curved; border of the posthumeral sinus and the posterior margin of the epipleural flap testaceous; underside of collum, sternum, coxæ, and femora testaceous, remainder of legs dusky testaceous, more infuscated near the articulations and on the tarsi. Scutellum blackish, all but the tip concealed. Hemelytra wider than in *M. longipes*, milky whitish on the clavus and in all the areoles, the veins dark brown, and the costal border black or fuscous, sinuated, the apical areole with a large, ovate, white spot. Connexivum yellow; middle line of the venter and the genital segments dull fulvous, the middle sometimes with a slender black line.

Length to tip of venter 2 $\frac{3}{4}$ -3 mm.; width of pronotum 1 $\frac{1}{4}$ mm. The middle femora are about one third longer than the anterior ones, and the posterior femora are nearly one third longer than the middle ones. One female is shorter and darker than the others.

Specimens of both sexes were taken on the Mount Gay estate, between September 21 and 26, on the surface of water.

6. *MICROVELIA*, sp.?

A small insect, numbered 112 and 122, belonging to this genus was found on stagnant water at Beaulieu and Woburn; but the specimens are possibly nymphs and too undeveloped for specific definition.

HEBRUS, Curtis.

1. *HEBRUS CONCINNUS*, sp. nov.

Form of *H. pusillus*, Fallen. Fuscous or rust-brown above, minutely pubescent, with the disk of pronotum moderately flat and the collum well defined and fulvous. Head nearly as long as the pronotum, dark brown, minutely scabrous, tinged with rufous at tip; antennæ dusky testaceous, sometimes fuscous on the tips of the two basal joints, the first of these a little longer than the second, generally paler at base, the three following ones very slender, set with erect pubescence, the third longer than either of the following ones, the fourth and fifth subequal; underside of head and the bucculæ testaceous; the rostrum pale testaceous, reaching to the posterior coxæ. Pronotum with a depressed, curved, rufous margin extending a little over the base of the scutellum; the lateral margins notched behind the swollen anterior lobe; the humeral angles prominent, rounded, with a callous long submargin; the middle line impressed, and each side of it with a few coarse punctures anteriorly and with a group of less coarse ones posteriorly; the reflexed lateral margin and underside of collum rufous. Scutellum dull fuscous, rough and uneven; legs testaceous, a little dusky on the knees, tibiæ, and tarsi. Hemelytra scarcely longer than the abdomen, obscurely sericeous pubescent, pale smoke-brown at base, fuscous at tip, with a stripe of white running out from the base of the clavus, and a longer pale streak on the subcostal long areole; the membrane pale fuscous, with a pale spot each side next the cuneus; the margin of the entire wing-coverts, including the membrane, also pale next the tip; there is in some specimens a faint trace of another spot. Venter polished, fuscous black, minutely sericeous pubescent, with a slender black stripe along the middle.

Length to tip of venter $2\frac{1}{4}$ - $2\frac{1}{2}$ mm.; width of pronotum 1 mm.

Three specimens of this insect were captured on the Mount Gay estate and Balthazar in June and August. During the latter month they occurred at the roots of grass, on muddy ground near pools of water. This species is a common one which has been met with in the Atlantic States and the West Indies, and it also occurs in California and Washington State. In Maryland it lives on the damp sand or mud of small pools beside streams of water, in spring and late summer. The unwinged individuals may be found

skimming over the surface of quiet water from spring until the end of summer.

2. *HEBRUS CONSOLIDUS*, sp. nov.

A little more compact than *H. sobrinus*, Uhler, with the transverse suture separating the lobes not so deep; colour fuscous, the surface above finely pubescent, more or less spread with whitish bloom. The head moderately produced before the eyes, somewhat tinged with rufous, a little rough between the eyes; the throat pale rufo-testaceous; antennæ dull rufo-testaceous, usually darker at the points of articulation, the first and second joints paler, subequal in length, thickened and black at tip; rostrum yellowish testaceous, reaching the posterior coxæ; the bucculæ, coxæ, trochanters, and legs pale testaceous, with the knees and tarsi sometimes infuscated. Pronotum broad, moderately sinuated before the posterior lobe, with the lateral margins reflexed, and the humeri prominent and blunt; the collum exceedingly narrow and almost obsolete; the posterior margin deflexed, broadly rounded. The base of the scutellum lunately tabulated, with the posterior portion triangular and depressed. Hemelytra chestnut-brown, minutely pubescent, the corium marked at base with a white wedge-shaped spot, basal half of the costal border dull yellowish; the membrane long, dusky, marked at base with a short curved streak, also each side with a bent spot, and on the middle towards the tip with an oblong spot, all of which are obscure whitish. Venter rufo-piceous margined with yellow.

Length to tip of abdomen $1\frac{3}{4}$ mm.; width of pronotum $\frac{3}{4}$ mm.

Several specimens were collected on the Mount Gay estate, August 26, at the roots of grass on muddy soil adjacent to pools of water, and September 6, at an altitude of 50 feet, on grass and weeds growing out of a pool of water; also on the Telescope estate, and at Balthazar, March 5, on the open sandy shore of a stream, under decaying leaves.

GALGULIDÆ.

PELOGONUS, Latr.

PELOGONUS MARGINATUS (Latr.).

Acanthia marginata, Latr. Hist. Nat. Ins. xii. p. 242.

Several specimens of different sizes and more than one pattern of marking were found at Balthazar, Windsor, and on the Mount Gay estate. They were found mostly in March and April, at which time they were also in the larval stage, on wet mud and sand near the river. Numerous specimens were observed, and they were found to fly quickly when disturbed. A very small specimen, with the broad yellow mark on the margin of pronotum, was found, August 26, on the Mount Gay estate, at the roots of grass, on mud, near pools of water.

MONONYX, Lap.

MONONYX RAPTORIUS (Fabr.).

Naucoris raptoria, Fabr. Syst. Rhyng. p. 111.

A nympha of this species, the only specimen in the collection, was found on the Mount Gay estate, September 6, near a pool of water where the grass and weeds grew thick.

NAUCORIDÆ.

PELOCORIS, Stål.

PELOCORIS FEMORATA (Pal. Beauv.).

Naucoris femorata, Pal. Beauv. Ins. Afr. et Amér. p. 237, pl. 20. fig. 4.

A few specimens both of adults and nymphs were captured at Woburn and on the Mount Gay estate, in August, in pools and in a sluggish stream of water near the level of the sea. The species is quite common in Canada, the United States, both east and west, and it has also been taken in the Antilles, Mexico, and Central America.

BELOSTOMATIDÆ.

ZAITHA, Am. et S.

ZAITHA ANURA, H.-Schf.

Zaitha anura, H.-Schf. Wanz. Ins. viii. p. 26, pl. 257. fig. 799.

Eleven specimens of this common insect were found at the several localities on the island. They were taken on the Mount Gay estate, and at Woburn and Chantilly in April, August, and September, from streams and pools of fresh water. The habits of this species in Grenada seem to be the same as in Florida and the South-western States, and in Cuba, San Domingo, Mexico, and Central America. This form is sometimes very common in Southern and Lower California.

NOTONECTIDÆ.

NOTONECTA, Linn.

NOTONECTA AMERICANA, Fabr.

Notonecta americana, Fabr. Ent. Syst. iv. p. 58.

A single nympha only was obtained. It was found at Woburn, August 20, in a sluggish stream in an open flat near sea-level.

ANISOPS, Spin.

ANISOPS ELEGANS, Fieber.

Anisops elegans, Fieber, Rhynchotograph. p. 61.

Many specimens, of both forms, were found on the Mount Gay

estate and at Woburn, in March, April, and August, in spring-water. These insects vary in the width and proportion of the body, as well as in the extent of black on the tips of the wing-coverts, just as we find to be the case in our smaller species of *Notonecta*. This we know to be the case from frequent observation of the various forms taken in sexual connection.

PLEA, Leach.

PLEA STRIOLA, Fieber.

Plea striola, Fieber, Entom. Monogr. p. 18, pl. 2. figs. 1-3.

Several specimens of this small insect were found at Woburn, August 30, on a sluggish stream, in a flat open country near sea-level. This species is sometimes common in ponds of stagnant water in most parts of the United States; it inhabits also Mexico, Cuba, Central America, and California.

CORISIDÆ.

CORISA, Geoff.

1. CORISA CUBÆ, Guérin.

Corisa cubæ, Guérin, Sagra's Hist. Cuba, Ins. p. 422.

Two specimens, both males, were secured at Woburn, August 30, in a sluggish stream in the open flat country near sea-level. This species is also now known from Florida, Texas, and Mexico, besides the island of Cuba.

2. CORISA RETICULATA, Guérin.

Corisa reticulata, Guérin, Sagra's Hist. Cuba, Ins. p. 423.

More than a dozen specimens, including both sexes, were found at St. George's and on the Mount Gay estate, in August and September, in pools of fresh water, and also in brackish water. A specimen from the Caliveny estate was found near the sea, in a pool of fresh water.

SIGARA, Fabr.

SIGARA SOCIALIS, B.-White.

Sigara socialis, B.-White, Trans. Ent. Soc. London, 1879, p. 274.

Nearly two dozen specimens of this species, including some varieties in size and colour, were collected on most parts of the island. At Balthazar it was found June 11, flying at sunset after a heavy rain. On the Mount Gay and Telescope estates it was taken in August from spring-water; but at Woburn it was more common, August 30, in a sluggish stream in the open country near sea-level. This species occurs also in Mexico and California, but it has not yet been taken in the eastern part of the United States.

3. On new Species of Heterocera from Tropical America.
By W. SCHAUS, F.Z.S.

[Received February 9, 1894.]

Fam. SYNTOMIDÆ.

1. PSOLOPTERA BASIFULVA, sp. nov.

Antennæ black. Head, thorax, and base of wings reddish; the wings otherwise and abdomen black, slightly tinged with dark blue; a small white lateral spot at the base of the abdomen. Exp. 32 millim.

Hab. Peru.

Obs. Allied to *P. thoracica*, Wlk., but differs in the reddish base of the wings.

2. HOMŒOCERA CINCTA, sp. nov.

Antennæ black, tipped with white. Head black, frons white. Collar black, a central orange spot and lateral metallic blue spot. Thorax black; patagia orange, margined with black. Abdomen dorsally with first segment yellow, otherwise black with metallic blue transverse lines, orange between the segments; anus orange; underneath black with some transverse white marks. Legs black. Primaries hyaline; the veins black, except the costal vein, which is reddish brown; an orange streak at the base above the submedian vein and another below it; the inner and outer margins narrowly black, the apex broadly black; a narrow black discal line. Secondaries hyaline, the outer margin finely black, the inner margin and anal angle broadly black. Exp. 28 millim.

Hab. Aroa, Venezuela.

3. SPHECOSOMA SIMILE, sp. nov.

Antennæ yellow, the tips black. Head yellow, a black spot posteriorly. Collar yellow, edged with black. Thorax yellow, the patagia inwardly edged with black. Abdomen yellow, with dorsally six broad black transverse bands. Legs yellow. Wings yellowish hyaline; the subcostal and median veins yellowish, the other veins black; the fringe blackish; a small black border at the apex of the primaries. Exp. 26 millim.

Hab. Aroa, Venezuela.

Obs. Very closely allied to *S. arctata*, Walk.

4. GYMNELIA AROA, sp. nov.

Antennæ black. Head and thorax black; a few dark bluish scales on the collar. Abdomen black; a subdorsal dark blue line, interrupted posteriorly on each segment; lateral orange streaks between the segments, and a lateral row of blue spots; underneath an outer row of yellow spots. Legs black; fore coxæ white.

Wings hyaline, the margins broadly black, especially the outer margins; a black spot at the end of the cell on the primaries. Exp. 33 millim.

Hab. Aroa, Venezuela.

5. *LÆMOCHARIS MULTIGUTTA*, sp. nov.

Antennæ black. Head black, with a crimson lateral spot. Collar black, with two crimson spots. Thorax black. Abdomen black; two basal segments with crimson spots, the other segments banded with red, interrupted subdorsally. Underneath a white spot. Legs black, fore coxæ white. Wings smoky hyaline, the veins and margins black; some crimson streaks at the base of the primaries, and on the same wings a black spot at the end of the cell. Exp. 23 millim.

Hab. Aroa, Venezuela.

6. *THRINACIA SALTA*, sp. nov.

Antennæ black. Head black, frons white. Thorax crimson; tips of patagia black. Abdomen black. Legs black, fore coxæ white. Wings black; the basal half of the primaries semi-hyaline except the costal and inner margin. Exp. 20 millim.

Hab. Aroa, Venezuela.

7. *PSEUDOMYA PICTA*, sp. nov.

Antennæ black. Head black, with a large crimson spot. Collar yellow. Thorax black, a crimson spot laterally on patagia. Abdomen dorsally crimson at the base, followed by a broad yellow space, the terminal half brownish; underneath brownish yellow. Legs black. Wings smoky brown, semi-hyaline, the margins a little darker. Exp. 22 millim.

Hab. Aroa, Venezuela.

8. *COSMOSOMA TIGRIS*, sp. nov.

Antennæ black. Head black, streaked with metallic blue. Collar yellow, laterally metallic blue. Thorax with a metallic blue spot posteriorly; patagia yellow, outwardly edged with blue. Abdomen bright yellow, with a narrow black transverse band on the posterior portion of each segment; segments 2 and 3 laterally blackish; a lateral row of metallic blue spots. Legs yellow with smoky streaks. Wings hyaline with narrow black margins, and the apex of the primaries broadly black; some yellow at the base of the inner margin, and a yellow streak on the costal margin. Underneath, the costal margin of the secondaries broadly orange-yellow. Exp. 34 millim.

Hab. Aroa, Venezuela.

9. *COSMOSOMA PLUTONA*, sp. nov.

Head and thorax black. Collar dark metallic green. Abdomen dorsally very brilliant crimson; underneath black with a white

mark. Wings hyaline, narrowly and evenly bordered with black; all the veins black and a black line at the end of the cell. Exp. 30 millim.

Hab. Castro, Paraná.

10. *DYCLADIA CINGLA*, sp. nov.

Palpi yellow. Head black, frons grey. Collar yellow. Thorax yellow, with three black stripes and a metallic blue spot posteriorly. Abdomen yellow; the third segment dorsally black, with three blue spots and two minute yellow spots; the following two segments with a black subdorsal spot each; last segments black, with a subdorsal and lateral blue spots. Wings hyaline, narrowly margined with black; the apex of the primaries broadly black; the costal vein yellow; the inner margins yellowish. Exp. 26 millim.

Hab. Aroa, Venezuela.

11. *MARISSA REGIA*, sp. nov.

Antennæ black, tipped with white. Head black, frons whitish, two metallic blue spots posteriorly. Collar black, two metallic blue spots. Thorax black, a broad white streak on patagia; a posterior blue and whitish spot. Abdomen, first three segments crimson, the second spotted with black and blue; the other segments black, with a subdorsal, two lateral, and two ventral rows of white spots. Legs black; tarsi, joints, and fore coxæ white. Primaries hyaline, the margins broadly black, still more so at the apex and inner angle; a small vitreous elongate spot on the costal margin at the base; a basal transverse black mark; a large black spot at the end of the cell, and connected by a broad black mark on vein 2 with the inner angle. Secondaries hyaline, the margins irregularly bordered with black. Exp. 34 millim.

Hab. Aroa, Venezuela.

Obs. Allied to *M. eane*, Hübn.

12. *ÆTHERIA PAULA*, sp. nov.

Body velvety black; the last three segments of the abdomen dorsally and laterally crimson; a round whitish spot on either side of the collar. Wings hyaline, the veins black and all the margins broadly black; at the end of the cell on the primaries a broad black spot from the costa to nearly the black border of the inner margin. Exp. 46 millim.

Hab. San Paulo, S.E. Brazil.

Obs. Closely allied to *Æ. hæmorrhoidalis*, Stoll, which has, however, the basal segment of the abdomen crimson, and has a black spot on the costal margin of the secondaries near the apex.

PTYCHOTRICOS, gen. nov.

Antennæ pectinated in both sexes, more so in the male than in the female. Primaries long and narrow, the outer margin very

oblique; veins 4 and 5 stalked; vein 6 from upper angle of cell; veins 7, 8, 9, 10, 11 stalked. Secondaries in the male with the outer margin very oblique, slightly excavated, the anal angle very acute; on the inner margin a fold enclosing a long tuft of hairs. The female has the outer margin slightly rounded, the anal angle also rounded; veins 3 and 4 stalked; 5 absent; 6 from upper angle of cell; 8 absent. Abdomen extending far beyond the secondaries, moderately stout.

13. *PTYCHOTRICOS ZEUS*, sp. nov.

Head black, bordered behind with orange. Thorax brownish black. Abdomen dorsally blackish; a subdorsal small orange basal spot; laterally and dorsally on the last segments brilliant metallic blue; underneath black with white bands. Fore coxæ white. Primaries above dark brownish black; the veins brownish; some brown streaks at the base, and a terminal row of oval lanceolate spots with dark centres; two semi-hyaline spots in the cell, and three transverse similar spots beyond the cell; a diaphanous shade below the median vein; a minute metallic blue spot on the inner margin. Secondaries black; a small hyaline spot at the base crossed by the black median vein; a tuft of long yellow hairs on the inner margin near the base. Underneath black, with all the semi-hyaline spots more distinct. Exp., ♂ 49 millim., ♀ 48 millim.

Hab. Aroa, Venezuela.

Fam. ARCTIIDÆ.

14. *ACLYTIA RUFIVENTRIS*, sp. nov.

Palpi black, crimson at the base. Head black, with two crimson spots behind the antennæ. Collar black, with a lateral crimson spot. Thorax black. Abdomen black dorsally, crimson underneath and apparently between the segments above also; the anal segment entirely black. Coxæ and trochanters crimson. Primaries above dull brown. Secondaries with the margins broadly smoky black and the disk vitreous. Underneath, the wings are similar, but more thinly covered with scales. Exp. ♀ 41 millim.

Hab. Jalapa, Mexico.

MACHÆRAPTENUS, gen. nov.

Antennæ toothed. Body stout. Palpi very short. Primaries long and narrow; apex rounded; outer margin very oblique; inner angle rounded; inner margin slightly sinuate; vein 6 from upper angle of cell; veins 7, 8, 9, 10 stalked. Secondaries triangular, costal margin rounded; outer margin excavated; discocellular straight; vein 5 absent; veins 6, 7, 8 stalked,

Obs. Allied to *Cratoplastis*, Feld,

15. *MACHÆRAPTENUS VENTRALIS*, sp. nov.

Head black. Collar creamy yellow edged with black. Thorax black; patagia creamy yellow tipped with black. Abdomen dorsally black, shaded with blue on the posterior half; underneath, coxæ and abdomen orange. Primaries yellowish white; the costal margin black; the base narrowly black; the inner angle finely black. Secondaries whitish. Exp. 42 millim.

Hab. Aroa, Venezuela.

16. *IDALUS ENERVIS*, sp. nov.

Palpi white, pink at the base. Head white, with a transverse pink streak. Collar white, laterally shaded with pink. Abdomen crimson dorsally, white underneath. Legs white, coxæ crimson. Primaries above bright yellow; the costal and inner margins finely white, the costa otherwise pinkish; a purplish shade contiguous to the white on the inner margin; a small purplish spot in the cell, and a large spot of the same colour at the end of the cell and extending beyond it; an outer transverse row of small purplish spots. Secondaries above white, with a few rosy hairs at the base. Underneath, the primaries are bright yellow, with the cellular spots crimson instead of purplish; secondaries white. Exp. 31 millim.

Hab. Castro, Paraná.

17. *EUCERON AROA*, sp. nov.

Head brown, two orange spots behind the antennæ. Collar brown. Thorax brown; a yellow streak on patagia. Abdomen greyish brown; anus orange; underneath banded with white. Primaries whitish grey; all the veins and apex dark grey; a subapical transverse white shade. Secondaries light greyish hyaline, the margins dark grey. Underneath, the primaries are of a uniform grey, with only the subapical white shade. Exp. ♀ 31 millim.

Hab. Aroa, Venezuela.

Obs. Closely allied to *E. costulatum*, H.-S.

18. *EUCEREON DENTATUM*, sp. nov.

Head grey, posteriorly crimson. Collar and thorax grey, streaked with black. Abdomen with the first segment grey; otherwise crimson dorsally, white below, black laterally; anus tipped with black. Primaries light grey; a basal and an inner dentate transverse darker line; beyond the latter a dark spot in the cell; a median dentate line followed by a large dark blotch at the end of the cell, which reaches from the costa to vein 2; an outer dentate line crossing a dark spot between 2 and 3, and followed by a similar line which does not reach the inner margin; a terminal row of dark spots, the largest one being just above the inner angle. Secondaries grey, the disk faintly hyaline. Underneath, the wings are dull grey. Exp. 31 millim.

Hab. Coatepec, Mexico.

19. *OPHARUS GEMMA*, sp. nov.

Palpi, legs, and abdomen below blackish. Antennæ black. Head, collar, and thorax light greyish brown; two minute black points on the collar. Abdomen dorsally orange, with a broad subdorsal brownish line tapering towards the anal segment. Primaries light greyish brown; an indistinct dark median shade not reaching the margins; beyond the cell a large dark brown spot cut by vein 5. Secondaries greyish brown. Exp. 55 millim.

Hab. Aroa, Venezuela.

20. *PSEUDAPISTOSIA ORDINARIA*, sp. nov.

Palpi, head, thorax, and primaries light brown. Secondaries whitish. Abdomen dorsally brown at the base, otherwise yellow with a subdorsal and a lateral row of short black streaks; underneath brown. Exp. 41 millim.

Hab. Castro, Paraná.

21. *HALISIDOTA PAGANA*, sp. nov.

♂. Palpi orange, tipped with black. Head, collar, and thorax black; the patagia black bordered with orange. Abdomen dorsally black; some small yellow marks laterally and underneath; the anal segment entirely yellow. Primaries above dark brown with the veins very distinct. Secondaries dull brown. Underneath, the wings are dull brown, yellow at the base. Exp. 36 millim.

Hab. Castro, Paraná.

Obs. The ♀ differs in having the last three segments of the abdomen yellow, with an interrupted subdorsal brown line.

22. *HALISIDOTA LINEATA*, sp. nov.

Palpi, head, and collar black. Thorax brown, shading to light buff posteriorly. Abdomen dorsally yellow, paler at the base; underneath whitish, with a ventral and lateral black line. Primaries above light buff, with a broad blackish streak extending from near the base on the median vein to the outer margin just below the apex; a marginal row of dark points. Secondaries white. Underneath whitish; the primaries with the costal margin buff, and a small subapical dark streak. Exp. 35 millim.

Hab. Castro, Paraná.

23. *PHÆGOPTERA JONESI*, sp. nov.

Palpi black, orange at the base. Head and collar buff, with two black spots on the latter. Thorax buff, with a few dark streaks. Abdomen dorsally orange; white below, with a ventral row of black marks, and a lateral row of small black spots. Primaries above buff; the veins brown; the outer margin broadly brown, inwardly very dentate towards the apex; a large brown spot at the end of the cell; an outer broad, irregular, transverse brown band, interrupted between veins 3 and 4, and not quite reaching either the costal or inner margins. Secondaries above whitish, narrowly margined with brown at the outer angle; a transverse

brown line at the end of the cell. Underneath, the markings are indistinctly repeated. Exp. 50 millim.

Hab. Castro, Paraná.

Obs. I take pleasure in naming this fine species after its discoverer, E. Dukinfield Jones, Esq.

24. *PHLEGOPTERA ARPI*, sp. nov.

Antennæ black, spotted with white; tips white. Palpi grey. Head yellow. Collar dark grey, laterally yellow. Thorax dark grey anteriorly, shading to yellowish posteriorly. Abdomen: base and last two segments dark grey; other segments bright yellow, black between the segments, only noticeable subdorsally; anus tipped with creamy hairs. Primaries whitish; a dark grey spot on the base of the inner margin; an inner and a median wavy grey line, the latter crossing a conspicuous round grey spot in the cell; beyond this a group of six large grey spots, two in the cell, the others between veins 2-6; an outer irregular grey line outwardly shaded with grey, dentate, extending on each vein towards the outer margin; a terminal row of large grey spots between the veins. Secondaries dark grey. Underneath grey, somewhat mottled with white. Exp. 42 millim.

Hab. Rio Janeiro.

Obs. Named after its discoverer, Mr. J. Arp.

25. *ARACHNIS TENEBRA*, sp. nov.

Head black, white posteriorly. Collar black. Thorax white with a large black spot; patagia black, broadly edged with white. Abdomen black. Primaries above black; some irregular quadrate white spots at the base; beyond this three large and one small white spot on the costal margin; two white blotches on the outer margin; a white spot at the origin of veins 3 and 4; a small white streak at the inner angle, and a large X-shaped white mark on the inner margin. Secondaries black. Underneath, wings black; fewer white marks on the primaries. Legs black; tarsi with white hairs. Exp. ♀ 40 millim.

Hab. Orizaba, Mexico.

LAMPRUNA, gen. nov.

Antennæ pectinated. Primaries short and broad; the outer margin slightly oblique. Secondaries broad oval; veins 3 and 4 from lower angle of cell; veins 5 and 6 absent; vein 8 from just beyond middle of cell.

Allied to *Symphlebia*, Felder.

26. *LAMPRUNA ROSEA*, sp. nov.

Head red. Collar orange, mottled with red; thorax reddish; patagia orange, edged with red. Abdomen red. Legs yellow, broadly banded with grey. Primaries above yellow, the veins red; a broad inner and outer transverse grey band, uniting above the

submedian vein, leaving on the inner margin a large yellow spot edged with red; on the yellow basal portion some small red spots; the inner transverse band bordered with red; some greyish spots on the costa and in the cell between the two bands; a terminal row of grey spots between the veins; fringe yellow, spotted with grey. Secondaries red. Underneath, wings yellow; an outer row of black spots on the primaries. Exp. ♂ 36 millim.

Hab. Aroa, Venezuela.

GRAPHEA, gen. nov.

Antennæ finely pectinated. Abdomen fairly stout. Primaries long, narrow; apex slightly acute; outer margin rounded, then oblique; vein 6 from upper angle of cell; veins 7, 8, 9 stalked. Secondaries long, narrow; veins 4 and 5 stalked; 6 and 7 from upper angle of cell; 8 from end of cell, nearly touching 7 in its entire length.

27. GRAPHEA MARMOREA, sp. nov.

Head and thorax brownish yellow; the collar and patagia edged with brown; two brown points on the collar. Abdomen pink dorsally, yellow underneath. Anterior portion of primaries from base of inner margin to apex yellowish, covered with rows of small, irregular orange spots, interrupted by an inner broad brown band and a large black spot at the end of the cell, connected with the costal margin by a brown shade; the posterior portion of the wing brownish mottled with lilacine; a terminal white line; the extremities of the veins whitish lilacine. Secondaries pink, slightly hyaline. Underneath yellowish pink, showing indistinctly the markings of the upper surface. Exp. 45 millim.

Hab. Aroa, Venezuela.

CRESEIRA, gen. nov.

Antennæ finely pectinated. Primaries long; the outer margin oblique; the inner angle rounded; veins 6, 7, 8, 9, 10 stalked. Secondaries with the outer margin well rounded. Veins 3 and 4 from lower angle of cell; 5 absent; 6 and 7 stalked; 8 from half the length of cell.

28. CRESEIRA ANNULATA, sp. nov.

Head and collar buff, the latter brown laterally. Thorax buff; patagia outwardly brown. Abdomen pink dorsally, yellowish underneath. Primaries above brown; the costal margin and apical third of the wing, except the outer margin, buff, with a number of ring-shaped brown spots, those on the costal margin with only a minute central buff point, the others consisting of fine rings; a subapical transverse brown line; the outer margin and inner angle lilacine. Secondaries pink. Underneath yellowish; the primaries showing the marks of the upper surface; secondaries with a brown discal spot. Exp. 44 millim.

Hab. Rio Janeiro.

MUNONA, gen. nov.

Antennæ pectinated in both sexes. Wings long, fairly broad, the outer margin oblique. Primaries with vein 6 from upper angle of cell; 7, 8, 9 stalked. Secondaries with veins 4 and 5 from lower angle of cell; 8 short, from near the end of cell. Secondaries in the ♂ triangular, the inner margin and anal angle rounded.

29. *MUNONA IRIDESCENS*, sp. nov.

Body pale yellow; the collar posteriorly edged with orange; three orange streaks on the thorax. Fore coxæ orange. Primaries silvery yellow, all the veins slightly darker; an orange point at the base. Secondaries yellowish white, semi-hyaline. Exp., ♂ 52 millim., ♀ 65 millim.

Hab. Aroa, Venezuela.

30. *ANTARCTIA VENATA*, sp. nov.

Head and thorax reddish brown. Abdomen dorsally yellowish brown, ventrally black. The wings are rather thinly clothed with scales. Primaries greyish brown; all the veins white. Secondaries paler, with the white veins less distinct. Underneath, the same. Exp. ♀ 30 millim.

Hab. Castro, Paraná.

Fam. EUPTEROTIDÆ.

31. *APATELODES PARVULA*, sp. nov.

Palpi brown. Head, thorax, and abdomen brownish grey, the base of the abdomen and two transverse shades on the thorax darker. Primaries grey, irrorated with brown scales; a large dark brown spot on the interior half of the inner margin, but not reaching the base, and outwardly crossed by a slightly oblique light shade; from near the middle of the costal margin a brownish indistinct band extends towards but does not reach the inner angle; from this band to the outer margin all the veins are distinctly paler; a light shade crosses the end of the cell; the outer line prominent, whitish, and anteriorly slightly curved outwardly; two subapical dark brown spots followed by two semi-hyaline spots. Secondaries above brown; the inner margin and anal angle greyish brown, darker; an outer transverse whitish line. Underneath brown, shaded with grey on the costal margins of both wings and on the inner margin of the secondaries, where there are also some brown marks; the outer transverse white line indistinct on the primaries, more distinct on the secondaries. Exp. 28 millim.

Hab. Castro, Paraná.

32. *OLCECLOSTERA CASTRONA*, sp. nov.

Palpi dark brown. Head and thorax grey, with a central brown

line. Abdomen reddish brown. Primaries above light grey, thinly speckled with dark scales; the inner and outer lines very indistinct, angular, and apparently geminate; the fringe dark brown; between veins 5 and 6 a small hyaline spot; on the costa near the apex a small dark shade. Secondaries light brown, with two indistinct wavy lines; the fringe on the outer margin near the anal angle very dark brown. Underneath greyish brown; the two lines on the secondaries distinct, and a minute black spot in the cell; on the primaries only the outer line visible, which is distinct and touches the hyaline spot. Exp. 28 millim.

Hab. Castro, Paraná.

33. OLCECLOSTERA AZTECA, sp. nov.

Body light grey; two lateral white spots at the base of the abdomen. Primaries above light grey, with two inner and two outer very distinct, slightly wavy dark grey transverse lines; the furthest line touching a round hyaline spot between veins 5 and 6; the outer margin from below the apex to the inner angle brownish, limited by a lunular dark line; a dark point in the cell. Secondaries brownish, with two slightly curved conspicuous dark lines; the extreme margin and fringe dark grey. Underneath brownish, with the transverse lines dark, the inner lines absent on the primaries; a black discal point on each wing. Exp. 32 millim.

Hab. Jalapa, Mexico.

DUKINFELDIA, gen. nov.

Antennæ pectinated in both sexes, but more so in the ♂ than in the ♀. Body stout; abdomen extending beyond the secondaries. Primaries with the costal and inner margins straight, the outer margin and inner angle rounded; discocellulars inwardly and deeply curved below vein 5; vein 6 from upper angle of cell; 7, 8, 9, 10 stalked. Secondaries broad, the inner margin rounded; discocellulars angled below 5, a veinlet extending from this angle to the base; veins 6 and 7 stalked.

34. DUKINFELDIA SUPREMA, sp. nov.

Head reddish brown. Thorax mottled with long brown and grey hairs. Abdomen dorsally black, with a few white hairs; underneath banded orange and black.

♂. Primaries above white, all the veins dark reddish brown; the subcostal, median, and submedian veins most heavily marked; the costa finely black. Secondaries white, some orange hairs at the base. Underneath white, the extremities of the veins blackish. Exp. 53 millim.

♀. Primaries reddish brown; the costal margin grey; the base and spaces between veins on outer margin irrorated with grey scales; fringe white. Secondaries dull brown; fringe white. Underneath, wings dull brown, some orange scales at the base; fringe white. Exp. 65 millim.

Hab. Castro, Paraná.

Fam. SATURNIIDÆ.

35. *HEMILEUCA DUKINFIELDI*, sp. nov.

Head, collar, and thorax dark buff; patagia black. Abdomen orange dorsally; underneath black, with a lateral row of small white spots. Primaries above dark brown, with all the veins finely outlined in orange; an outer transverse narrow white band. Secondaries similar, but the transverse band is less distinct, and the veins are not so distinctly marked towards the base of the wing, where there are also a quantity of long buff hairs, more noticeable in the male than in the female. Underneath, the wings are similarly but less distinctly marked. Exp., ♂ 60 millim., ♀ 75 millim.

Hab. Castro, Paraná.

Fam. COSSIDÆ.

36. *ZEUZERA MASONI*, sp. nov.

♂. Head brown. Thorax and abdomen grey. Primaries light grey, with fine black transverse striæ; the basal third of the costa black; the central third of the median vein anteriorly shaded with black; a small dark space on the costa at two thirds from the base. Secondaries white; the outer margin irrorated with black; the fringe alternately white and grey. Exp. 51 millim.

Hab. Jalapa, Mexico.

Obs. Also in coll. Mason.

37. *LANGSDORFIA DUKINFIELDI*, sp. nov.

Palpi dark brown. Head, thorax, and abdomen light brown, the latter with a dark spot dorsally on the last segment. Primaries above fawn-colour shaded with smoky grey; a large velvety brown spot near the base, not reaching the inner margin, and containing a bright silver spot; just beyond this a pale V-shaped mark starts from the costal margin, nearly touches the inner angle, and then extends to the apex, turning in near the costal margin to form two curves in the direction of the cell; the space within the base of this V is dull grey, the upper portion reddish brown towards the apex, fawn-colour towards the base; on the outer margin the veins are slightly paler. Secondaries whitish, with smoky margins. Underneath, the primaries are dull brown, with two reddish-brown spots on the outer half of the costal margin; the secondaries whitish, irregular spots on the margins and two large brown spots on the costal margin. Exp. ♂ 38 millim.

Obs. The ♀ expands 48 millim. and has the secondaries brownish.

Hab. Castro, Paraná.

38. *LANGSDORFIA AROA*, sp. nov.

Abdomen dark brown; the patagia bordered with velvety brown. Primaries above the costa buff, spotted with dark velvety brown, each spot edged with whitish; a small triangular

buff space, speckled with black, on the inner margin, the base of the triangle formed by vein 2; the rest of the wing dark velvety grey, with large dark velvety brown spots, edged with lilacine, as follows:—a subapical irregular spot; a five-sided spot at a third from the base and reaching the median vein; a small triangular spot in the cell, resting on the median vein; a large oval oblique spot near the outer margin crossing veins 3 to 5; three spots between the median and submedian veins; a terminal row of spots disappearing towards the apex; the fringe reddish brown. Secondaries dull blackish brown. Underneath, primaries brown; secondaries dark grey, irregularly spotted with a darker shade. Exp. 46 millim.

Hab. Aroa, Venezuela.

Fam. HEPIALIDÆ.

39. *DALACA SERTA*, sp. nov.

Body reddish brown. Primaries reddish brown, greyish along the inner and outer margins; transverse lunular lines, interrupted by the veins, cover the wings with a mass of grey lanules outwardly shaded with brown, and they are most numerous on the outer third of the wing. Secondaries reddish brown. Exp. ♂ 41 millim.

Hab. Jalapa, Mexico.

Obs. Allied to *Dalaca assa*, Druce.

Fam. DIOPTIDÆ.

40. *POLYPOETES RUFIPUNCTA*, sp. nov.

Palpi black, orange at the base. Head black. Collar black, laterally white. Thorax black; patagia orange, with a black and a grey streak. Abdomen dorsally black; the posterior portion of each segment narrowly yellowish; underneath white. Primaries above black; all the veins on the basal half of the wing yellowish; a round white spot just beyond the cell; a round subapical orange-red spot. Secondaries above black; a round white spot beyond the cell, connected with the base of the wing by a broad yellowish space. Underneath, the primaries are black with the two spots as on the upper surface, and a white streak at the base; secondaries white, the outer margin broadly black. Exp. 25 millim.

Hab. Castro, Novo Friburgo.

Fam. LIMACODIDÆ.

41. *SEMYRA CARDIA*, sp. nov.

Palpi and head yellow. Thorax brown, mingled with yellow scales. Abdomen dark brown; at the base laterally covered with long yellow hairs. Primaries above violaceous brown; the costal margin for two thirds from the base narrowly yellow; the base of

the costal vein dark brown; a basal angular silver-white line from the median to the submedian vein, followed by an irregular golden-brown spot, outwardly shaded with dark brown; a dark velvety-brown streak in the cell, followed by a golden-brown spot between veins 5 and 6, and separated from it by an indistinct whitish line which extends from the costa to vein 2, where it joins a submarginal white line extending from the apex to the inner margin; this submarginal line is inwardly heavily shaded with dark brown, and is outwardly contiguous to some small brown spots. Secondaries yellowish white. Underneath, the primaries are light brown, the inner margin broadly white; the secondaries yellowish, the costal margin broadly light brown. Exp. 20 millim.

Hab. Castro, Paraná.

Obs. Very closely allied to *S. bella*, H.-S.

42. *TRABALA RUBENS*, sp. nov.

Palpi and head golden brown. The thorax purplish. Abdomen light golden brown, with a few purplish anal hairs. The primaries above golden brown, with the veins darker; the costal margin broadly suffused with purplish; an irregular dark line extends from the apex to the middle of the submedian vein, and is followed by an indistinct marginal shade. Secondaries above yellowish white; the fringe on both wings very long, the inner half golden brown, the outer half purplish. Underneath, the wings are light golden brown. Exp. 26 millim.

Hab. Castro, Paraná.

43. *TRABALA* (?) *TRUNCATA*, sp. nov.

Palpi, head, and collar brown. Thorax and abdomen yellowish brown. Primaries above yellowish brown; an indistinct basal and a median irregular transverse brown line; an outer heavily marked straight brown line, closely followed by an irregular indistinct line. Secondaries above brownish yellow, with an indistinct median brown line. Underneath yellowish brown, the outer margins paler; two distinct, irregular, outer brown lines; on the secondaries a brown dot at the end of the cell. Exp. 28 millim.

Hab. Castro, Paraná.

44. *PEROLA ADMIRABILIS*, sp. nov.

Palpi crimson, tipped with white. Head white, with all the scales around the eyes crimson. Thorax and body white; the patagia edged with crimson. Primaries above yellowish; at the base some crimson scales on the costal margin and a few black scales scattered on either side of the submedian vein; an indistinct curved band of blackish scales beyond the cell, and beyond this a short, indistinct crimson shade extends from the costal margin. Secondaries above white. Underneath, wings yellowish, the costal half of the primaries crimson. Exp. 22 millim.

Hab. Castro, Paraná.

45. *DALMERA FUMATA*, sp. nov.

Palpi and head orange. Collar whitish. Thorax and abdomen orange. Primaries above pinkish yellow, palest along the costa; at the end of the cell an oblique black streak; below this and from near the base of the subcostal vein to nearly the middle of the outer margin a heavy smoky-black shade, and from this a similar but smaller shade extends towards the inner margin. Secondaries above bright yellow; orange along the inner margin. Underneath, the wings are orange, the primaries having the base of the costa and a mark at the end of the cell black. Exp. 31 millim.

Hab. Castro, Paraná.

Obs. Closely allied to *D. tijucana*, Schaus.

Fam. LASIOCAMPIDÆ.

46. *OCHA BRUNNEA*, sp. nov.

Above entirely dark brown. The primaries with two indistinct transverse median lines, slightly flecked with white; a submarginal irregular row of small black spots, almost imperceptibly flecked with greyish scales. Underneath lighter brown, with a few white scales on the costal margins of both wings at about two thirds from the base. Exp. 20 millim.

Hab. Castro, Paraná.

47. *OCHA FALSA*, sp. nov.

Above light brown. The primaries with the base and a broad shade through the cell darker; a black discal point and a marginal row of conspicuous black points; the basal lines indistinct; the outer line geminate, angular; a few black streaks between the end of the cell and the apex. Underneath light brown, with a marginal row of indistinct dark spots. Exp. 22 millim.

Hab. Castro, Paraná.

48. *OCHA FAMATA*, sp. nov.

Head and thorax light brown. Abdomen dorsally blackish, otherwise light brown. Primaries above light reddish brown; a dark streak at the base of the cell; the inner line fine, dark, geminate, wavy, and outwardly curved; the outer line also geminate, wavy, and outwardly shaded with whitish; veins 6-10 distinctly whitish; from the cell to the outer margin between veins 4 and 7 a dark shade containing three clusters of reddish-brown scales, which are contiguous to an irregular, fine, white marginal line; a small dark subapical spot between veins 9 and 10; the fringe pale, with dark spots. Secondaries above dark brown, with the costal margin broadly light brown, crossed by wavy white lines; some paler scales along the inner margin; fringe alternately buff and dark brown. Underneath dark brown; the costa finely and the inner margin of the primaries broadly buff; the

fringe on the secondaries paler, and on both wings a marginal row of indistinct dark spots. Exp. 25 millim.

Hab. Castro, Paraná.

49. *OCHA MARGINATA*, sp. nov.

Head and thorax brown, mingled with buff hairs. Abdomen brown. Primaries light brown, slightly hyaline, the veins all dark; some dark violaceous striæ at the base and on either side of a pale outer line, which forms a large wavy curve before reaching the middle of the inner margin; a broad marginal greyish shade; a terminal buff line; the apex light grey; the fringe dark at the inner angle. Secondaries brown; a greyish marginal line near the apex. Exp. 26 millim.

Hab. Jalapa, Mexico.

50. *HYDRIAS CASTRENSIS*, sp. nov.

Palpi yellowish. Head and thorax grey, the abdomen lighter. Primaries above grey; some brown scales at the base and also two contiguous transverse brown lines, the inner one wavy, the outer slightly dentate; a brownish-black spot in the cell; an outer indistinct transverse line, slightly dentate and outwardly shaded with buff; a wavy submarginal dark grey shade. Secondaries above white; the costal margin with the basal half brown, the outer half grey; the fringe grey. Underneath, the primaries are smoky-brown, whitish along the inner margin, a submarginal dark shade; the secondaries white, with two indistinct greyish lines on the costa. Exp. ♂ 25 millim.

Hab. Castro, Paraná.

Fam. LITHOSIIDÆ.

51. *LITHOSIA PERUVIANA*, sp. nov.

Head yellow, with a transverse grey band. Collar yellowish. Thorax pink. Abdomen yellowish, shading to deep orange at the anal segment. Primaries dark grey; the costal and inner margins, also a central longitudinal streak, yellowish. Secondaries yellow, shading to orange at the anal angle; the apex dark grey. Exp. 20 millim.

Hab. Peru.

52. *LITHOSIA VENOSA*, sp. nov.

Palpi and head orange, grey posteriorly. Collar, thorax, and abdomen greyish white. Primaries above light grey, all the veins and fringe white. Secondaries white, the costal margin tinged with grey. Underneath, primaries dark grey, fringe white; secondaries white, the costal margin and apex dark grey. Exp. 28 millim.

Hab. Castro, Paraná.

53. *CHORIA SEPARATA*, sp. nov.

Head deep yellow, with a transverse grey band; collar yellow. Thorax dark grey; patagia yellow, inwardly shaded with grey. Abdomen yellowish; in the female a black dorsal spot on the last segment denuded of scales. Primaries above silvery white; the inner margin broadly dark grey, anteriorly shaded with yellow; the costal margin finely yellow. Secondaries yellowish white; the apex broadly smoky grey. Underneath, the secondaries are the same; the primaries are smoky grey, with two thirds of the costal margin, a streak beyond the cell, and a streak above the inner margin yellowish. Exp. 27 millim.

Hab. Castro, Paraná.

Obs. In the female the secondaries are entirely yellowish white, and the primaries below are whitish with the inner and outer margins smoky.

54. *CRAMBOMORPHA MARCATA*, sp. nov.

Head, collar, and thorax dark grey; the collar laterally and base of patagia yellowish. Abdomen whitish grey, shading to yellow at the last segment. The primaries above silvery white; the costal margin chrome-yellow; the inner margin broadly dark grey, with a whitish streak at the base. Secondaries white, faintly tinged with grey on the outer margin. Underneath white, the primaries tinged with grey, and the chrome-yellow costal margin very conspicuous. Exp. 34 millim.

Hab. Rio Janeiro.

Obs. I have a female absolutely similar from Peru.

55. *CRAMBOMORPHA VIRGINIA*, sp. nov.

♀. Palpi luteous. Head dark grey. Collar and abdomen fawn-colour. Thorax white. Wings pure white, the primaries silvery; secondaries thinly covered with scales. Exp. 31 millim.

Hab. Castro, Paraná.

Obs. Allied to *C. argentea*, Feld., but smaller and a more delicate insect. The colour of the collar distinguishes the species at once.

56. *CRAMBIDIA CORCOVADA*, sp. nov.

Head and thorax grey. Abdomen dorsally grey, underneath yellowish. Primaries above whitish, the inner margin greyish; secondaries yellowish white. Underneath, the primaries are greyish, the basal half tinged with yellow; the secondaries whitish, the costal margin yellow. Exp. 21 millim.

Hab. Rio Janeiro.

57. *CRAMBIDIA PETROLA*, sp. nov.

♂. Body grey; anal segment of abdomen yellowish. Primaries white; the costal margin finely chrome-yellow; the inner margin

shaded with brownish grey. Secondaries white. Underneath, the primaries are yellowish white. Exp. 24 millim.

Hab. Tijuca, Petropolis.

Obs. The female similar in every respect.

58. SALOPOLA VESTALIS, sp. nov.

♂. Silvery white; the inner margin of the primaries very light brown. On the costal margin of the secondaries a long tuft of yellow hairs. Underneath white; a tuft of yellow hairs on the primaries just above the median vein, and curling over the origin of veins 2, 3, and 4. Exp. 33 millim.

Hab. Castro, Paraná.

Obs. This species is closely allied to *S. argentea*, Walk., but differs in its white secondaries and tufts of hairs, which are longer in *S. argentea* and black on the underside of the primaries.

59. AREVA PERPENZA, sp. nov.

♂. Body white above, yellow underneath. Primaries white; the costal margin pale yellow; the inner margin faintly brownish. Secondaries white, with a few long yellow hairs in the cell. Underneath white; the primaries with the outer margin slightly smoky, the costal margin orange, and there is a large oval cluster of long hairs. The primaries are a little longer than the secondaries and very broad. Exp. 31 millim.

Hab. Jalapa, Mexico.

Fam. NOTODONTIDÆ.

60. ŒDEMASIA TROPICA, sp. nov.

Palpi, head, and collar brown. Thorax whitish. Abdomen light brown. Primaries above light grey; the costa and base shaded with brown; a wavy, fine, geminate, black median line, inwardly shaded with brownish, and followed at the end of the cell by an inwardly curved black crescent-shaped line; an outer geminate black line, interrupted and very indistinct; a terminal black wavy line, with inwardly a short black streak on each vein. Secondaries brown. Underneath, primaries brown, secondaries whitish margined with brown. Exp. 39 millim.

Hab. Aroa, Venezuela.

61. RIFARGIA MASTA, sp. nov.

Palpi, head, and thorax brown, thickly mottled with green scales. Abdomen dark grey, with still darker clusters of scales subdorsally. Primaries above moss-green, mottled with brown, and paler beyond the cell; at the base a fine black streak surmounting a pale spot on the inner margin; the basal and median lines almost imperceptible; a dark brown transverse streak at the end of the cell; the outer line represented by two series of minute dark spots on the veins separated by white scales; the submarginal line indistinct, forming towards the inner angle some

brownish spots; a terminal row of lunular green spots between the veins; the fringe dark grey. Secondaries greyish, with the extreme outer margin much darker. Underneath greyish, the extreme margins brown. Exp. 40 millim.

Hab. Jalapa, Mexico.

62. *EDEMA ASTUTA*, sp. nov.

Palpi brown. Head dull yellow. Collar brown. Thorax light lichen-green. Abdomen brown above, dull yellow underneath, with a dark ventral line. Primaries above dark brown, with the inner margin broadly greyish; the veins flecked with alternately dark and light scales; the middle of the costal margin, a quadrate spot in the cell, and some surrounding shades of a very dark and dull brown; a submarginal series of triangular dark spots, followed by a row of small clusters of black scales; the apex yellowish white, with some subapical light brown streaks; the fringe brown, spotted with yellowish. Secondaries above brown, with the fringe dull yellow. Underneath, the wings are brown with a pale shade at the apex of the primaries and a marginal row of brown dots. Exp. 48 millim.

Hab. Jalapa, Mexico; Aroa, Venezuela.

Obs. This species is very closely allied to *E. mandela*, Druce.

63. *LIRIMIRIS* (?) *MEPHITIS*, sp. nov.

Palpi, head, and thorax brownish grey; the abdomen paler, except dorsally on the first segment, where there is a tuft of rich brown hairs. Primaries above greyish brown, slightly darker towards the outer margin, except a submarginal transverse shade which is very indistinct; the inner margin irrorated with much lighter scales, amongst which a few small clusters of dark brown scales are very conspicuous; at the end of the cell two dark brown spots, the lower one much the larger. Secondaries above brown, with a few dark scales at the anal angle, surmounted by a small yellow spot. Underneath, the wings are light brown, with a few small black streaks on the costal margin of the primaries near the apex. Exp. ♀ 46 millim.

Hab. Jalapa, Mexico.

Obs. Also in coll. Mason.

64. *LOPHODONTA* (?) *PALLIDA*, sp. nov.

Head and thorax greyish white. Abdomen greyish brown. Primaries above greyish white, the base shaded with brown; an inner transverse, dark brown, geminate line, indistinct towards the costa; a small brown shade in the cell, followed by a dentate brownish transverse line; a geminate, dark brown, outer line, dentate, followed by two yellow spots between veins 2 and 3, and 3 and 4, outwardly shaded with brown; a dark greyish costal space beyond the outer line; a terminal, fine, brownish line from the costa to vein 2. Secondaries brownish, the costal margin mottled with

white; fringe white. Underneath, primaries brownish, secondaries greyish. Exp. ♀ 44 millim.

Hab. Aroa, Venezuela.

65. *HETEROCAMPA PARANENSIS*, sp. nov.

Head and thorax grey, mottled with greenish scales; the collar somewhat paler. The abdomen grey above, yellowish white underneath. The primaries above light grey; two thirds of the costa from base darker grey, and also the base of the inner margin darker; a green shade extends from the base of the costal margin to the middle of the inner margin, and continues to the inner angle; the outer margin greenish, the extremities of the veins black; the apical third of the costa broadly amber-green, and an indistinct greenish shade from the costa, passing beyond the cell and extending to the outer margin. Secondaries above white; the costal margin brown, with transverse white shades; the inner margin brown, and the extreme outer margin narrowly brown. Underneath, the wings are white; the costal margin of the primaries yellowish, and the extreme outer margin and tips of the veins on the same wings brown. Exp. 35 millim.

Hab. Castro, Paraná.

66. *BLERA BOLIVARI*, sp. nov.

♂. Body greyish brown; patagia white. Primaries above white; a brown patch on the costa at a fourth from the base; a similar spot on the costa at three fourths from the base, followed by two small brown spots; the inner margin mottled with brown, forming in the female a triangular space connected by a brown line with the inner costal spot; the fringe white, spotted with brown. Secondaries greyish brown; fringe whitish. Underneath, primaries brown, the fringe and apical half of the costa spotted with brown; secondaries whitish, the costal and outer margins broadly shaded with greyish brown. Exp. 52 millim.

Hab. Aroa, Venezuela.

4. On the Habits of the Flying-Squirrels of the
Genus *Anomalurus*. By W. H. ADAMS.¹

[Received January 26, 1894.]

Along the whole length of the Colony of the Gold Coast, and parallel with and some 15 miles from the sea-shore, runs a range of high hills with deep gorges and ravines covered with almost impenetrable bush. These hills vary from 500 or 600 feet to a much greater height, and it is in this bush that I obtained the specimens of the peculiar Flying-Squirrels of the genus *Anomalurus* which I have presented to the British Museum².

¹ Communicated by OLDFIELD THOMAS, F.Z.S.

² [With one single exception, the "small brown skin" mentioned on p. 245 (which is *A. fraseri*, Waterh.), all the skins obtained by Mr. Adams belong to

I do not know what the indigenous native name for these Squirrels is, but they are called Flying-Foxes, by the English-speaking natives and are very numerous. They live in hollow trees, not being particular as to their height or as to whether they are situated in the ravines or on the hills. Owing to the density of the bush it is very difficult for the white man to get at them, the only chance being to stand on a clearing and shoot them as they fly across, and this can only be done on a night when the moon is at the full.

The first skin I ever saw was when I was at Accra. It was in the possession of a native who was brought before me for some offence, and, being struck with it, I asked if some more could be got. The native of the Coast, however, does not hurry himself, and, hearing nothing more of it, I quite forgot the matter. Some months after, in April 1893, I went to the Sanitarium at Aburi, a village situated at a height of some 800 feet among the hills before mentioned. The rains were just beginning and were very heavy. While watching a big cotton-wood tree being felled, I saw an animal which I mistook for a cat run out of a hole some 50 feet up and then return. When the tree fell, with the help of a native I extricated the occupant, which turned out to be one of these Squirrels. It was very fierce and bit and scratched savagely till killed. The hole was about 5 feet deep, and covered at the bottom with sticks and small branches to such an extent that it was evident some sort of a nest was intended. I took the skin, and the "boys" at once seized on the body, which they told me was the greatest delicacy that existed, and, as my servant said, "When you catch one man-fox you shut your door and don't want your friend to come and see you," meaning that it was too good to be shared. Finding that these Squirrels were to be had on the hills, I set to work to collect them.

They come out of their holes in the trees some hours after sunset, returning long before daybreak. They are only to be seen on bright moonlight nights, and in fact the natives say they do not come out at all in stormy weather or on very dark nights. They live on berries and fruits, being specially fond of the palm oil-nut, which they take to their nests to peel and eat. The most I have seen in one hole is three, though the natives say five or six are sometimes found. They pass from tree to tree with great rapidity, usually choosing to jump from a high branch to a lower one, and then climbing up the tree to make a fresh start. The temperature on the hills varies considerably. During the time I was there—the rainy season, from the middle of April to the middle of June—it was never very hot, and one night I remember the thermometer

the large black-and-white species discovered by Pel, and named in his honour *Anomalurus peli* (Temm. Esq. Zool. Guin. p. 146, 1853). The astonishing abundance in which Mr. Adams found this species is rather remarkable, as previously only three or four specimens of it seem to have reached European Museums.—O. T.]

going down to 44° on the ground. Of course in the dry season it is much hotter, but the natives say these animals are much more plentiful in the rains and that the rainier the season the more they see. They litter twice a year, once about September, the young remaining in the nest for about nine weeks, during which they are fed by the old ones on shoots, kernels, &c., and do not attempt to jump before the end of that period, extending the length of their jumps with their growth. I do not know the other time of breeding or whether they have a regular season. The hunters told me that 2 or 3 were usually born at one birth, never more than 4, and that there are several varieties, different in colour and size—some being black, some brown, some red, &c.; the specimens I obtained, some of which are now in the Natural History Museum, being the most plentiful. A native's description is always very vague, and the interpretation is another great difficulty; but I feel sure, both from what I saw and what I heard, that there must be several different sorts.

I managed before I left Aburi to get some dozen skins—all of the same kind—and instructed two native hunters to collect as many skins as they could for me, as I was much pleased with the fine fur and thought they would make a very good coat. I gave the men each a "book" or note promising to buy as many skins as they could collect at 1s. each.

I left Aburi in June and returned across the plain to Accra. About a month afterwards one of my hunters arrived from Aburi with 60 skins and his "book." I was rather surprised, but bought them. A few days after the other man arrived with 140 skins and his book, which he sternly insisted on my redeeming. I had not quite expected this, but chose 50 of the best, and at last got rid of the man, though not without much murmuring. However, having got an extra "dash," he was quite satisfied at last. He must have done very well, as from the look of the skins he must have collected them from all quarters, some being very old. This man had several different ones, *i. e.* apparently so; but I regret to say, with the exception of one small brown one, which is here to-night, and which was thrown in as a "dash," and one reddish-orange one which I bought by mistake, and which is now at South Kensington, I did not secure them. Some had a broad orange stripe down the back, some a large spot of orange on the back, and the brown skin was, I distinctly remember, similar to a small brown skin shown me by Mr. Oldfield Thomas, and which I believe was brought from Gaboon¹. These curious ones I did not buy, as my fur coat was prominent in my mind.

The shower, however, was not yet over, as in a few days one of my bailiffs turned up with 25 skins, and an old chief named Addo, from whom I used to buy curios, having once got it into his head that flying-foxes were the thing, turned up at almost daily intervals with half a dozen or so fresh skins, till I got sick of the very name of a flying-fox.

¹ *A. fraseri*.